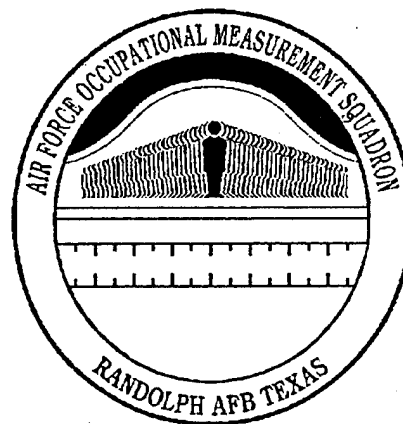




**UNITED STATES
AIR FORCE**



OCCUPATIONAL SURVEY REPORT

PAVEMENTS AND CONSTRUCTION EQUIPMENT OPERATOR

AFSC 3E2X1

AFPT 90-3E2-040

MAY 1996

19960801 121

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
1550 5th STREET EAST
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PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the Pavements and Construction Equipment Operator career ladder, AFSC 3E2X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products upon which this report is based are available for the use of operations and training officials.

The survey instrument was developed by CMSgt Jeffery L. Milligan, Inventory Development Specialist, with computer programming support furnished by Mrs. Olga L. Velez. Mr. Richard G. Ramos provided administrative support. Ms. Cynthia V. Luster, Occupational Analyst, analyzed the data and wrote the final report. This report has been reviewed and approved by Mr. James B. Keeth, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS, Attention: Chief, Occupational Analysis Flight (OMY), 1550 5th Street East, Randolph AFB Texas 78150-4449 (DSN 487-6623).

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SUMMARY OF RESULTS

1. Survey Coverage: The Pavements and Construction Equipment Operator career ladder was surveyed to obtain current task and equipment data for use in evaluating current training programs and as part of the 5-year production cycle for career ladder analyses. Survey results are based on responses from 1,756 respondents (1,579 military and 177 civilian respondents). Responses were received from 66 percent of all eligible AFSC 3E2X1 military personnel and 25 percent of eligible civilian pavements and construction equipment operators (spread out over 14 different occupational series). The predominant occupational series included in this survey include: 5703, Motor Vehicle Operator; 5705, Tractor Operator; 5716, Engineering Equipment Operator; and 5767, Airfield Clearing Equipment Operator. All major using commands are well represented in the survey sample.
2. Specialty Jobs: Two clusters and seven independent jobs were identified in the sample. One cluster was directly involved in performing the technical duties and tasks pertaining to pavements maintenance and construction equipment operation. The remaining cluster and jobs reflected a combination of technical and supervisory task performance, and training activities.
3. Career Ladder Progression: Personnel at the 3- and 5-skill levels perform many tasks in common, and both groups spend the vast majority of their relative job time performing technical pavements and construction equipment operator tasks across a wide variety of different jobs. At the 7-skill level, although members still perform a substantial amount of routine day-to-day technical pavements and construction tasks across a number of different jobs, a shift toward supervisory functions is evident. Personnel at the 9-skill level and Chief Enlisted Managers (CEMs) spend their relative job time exclusively on managing pavements and construction programs and facilities.
4. AFMAN 36-2108 Specialty Descriptions: All specialty descriptions accurately depict the nature of the respective jobs.
5. Training Analysis: Most of the Specialty Training Standard (STS) was supported by OSR data. A few areas in the STS display less than the recommended percent members performing matched tasks. These areas should be reviewed to determine any modifications required to improve the effectiveness or efficiency of training.
6. Implications: The Pavements and Construction Equipment career ladder has seen only minor changes in career structure since the previous survey in 1991. The primary technical orientation of this career ladder lies in the Pavements Maintenance and Construction Job. The day-to-day responsibilities of the Air Force pavements and construction equipment operators remain constant; these members construct, repair, and maintain roads, runways and other paved surfaces while operating related construction equipment. Personnel in the Pavements Maintenance and Construction job make up the bulk of the career ladder and perform a job

broader in scope than any other job identified in the career ladder. Members of the Pavements and Construction Equipment specialty appear fairly satisfied with their jobs with job satisfaction indicators generally higher than those in the previous survey.

**OCCUPATIONAL SURVEY REPORT (OSR)
PAVEMENTS AND CONSTRUCTION EQUIPMENT CAREER LADDER
(AFSC 3E2X1)**

INTRODUCTION

This is a report of an occupational survey of the Pavements and Construction Equipment career ladder completed by the Air Force Occupational Measurement Squadron (AFOMS). This survey was completed as part of the 5-year production cycle of career ladder analyses, as well as to collect current data for use in evaluating the impact of changes due to the recent restructuring of training in the Air Force. This study was also part of a government funded research project managed by the Armstrong Laboratories, Training Evaluation Branch (AL/HRTD). This project was selected as a vehicle for testing the interface between occupational analysis and the Training Impacts Decision System (TIDES). TIDES is designed as a decision making tool for use by training and functional personnel to address issues which come up in the Air Force Utilization and Training Workshops. On 31 October 1993, this AFSC was directly converted to the current AFSC 3E2X1 to conform to the new enlisted specialty coding nomenclature. The last survey report pertaining to this career ladder was published in September 1991.

Background

As described in AFMAN 36-2108 *Specialty Descriptions*, dated April 1995, personnel in this career ladder are responsible for: managing, constructing, maintaining, and repairing pavements and other surface areas, airfield mats and membranes, aircraft revetments, railroads, subgrades, and drainage structures; operating construction equipment and fixed mobile plants; using explosives to perform construction and demolition tasks; ensuring compliance with environmental regulations; using special construction techniques to prepare areas for constructing and maintaining roads, grounds, and airfield surfaces; concrete work, stabilizing soil, constructing and maintaining rigid and flexible pavements; and snow and ice removal.

Entry into the career ladder is from Basic Military Training School through an 8-week, 1-day formal training course conducted at Sheppard AFB TX. Resident ABR training includes: construction, maintenance, and repair of rigid and flexible pavements; excavation, subgrade stabilization, and base course compaction; operation and inspection of power tools and equipment; operation, inspection, and maintenance of dump trucks, front-end loaders with fork attachment, backhoes, and multi-purpose sweepers; knowledge of installation, inspection, and repair of fences and drainage structures; rapid runway repair; snow and ice control operations; and general and specific contingencies.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) AFPT 90-3E2-040, dated September 1994. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 20 subject-matter experts (SMEs), selected to cover a variety of major commands (MAJCOMs) at the following operational bases:

<u>BASE</u>	<u>REASON FOR VISIT</u>
Sheppard AFB TX	Location of resident technical training school
Eglin AFB FL	Has a large CE mission; uses wide range of equipment; provides range support; one of nine bases for civilian multi-skilling initiative
Hurlburt Fld FL	One of three Red Horse squadrons; uses a variety of heavy equipment
Minot AFB ND	Performs snow removal operations; has an active missile support mission

The resulting JI contained a comprehensive listing of 782 tasks grouped under 24 duty headings and a background section requesting such information as: paygrade; duty title; functional area; geographical area; vehicles, tools, or equipment used or operated; and forms used.

Survey Administration

From November 1994 through March 1995, base training offices at bases worldwide administered the inventory to all eligible AFSC 3E2X1 personnel. Military members eligible for this survey consisted of the total assigned 3-, 5-, 7-, and 9-skill levels and CEM-level population, excluding the following: (1) hospitalized personnel; (2) personnel in transition for a permanent change of station; (3) personnel retiring during the time the JIs were administered to the field; and (4) personnel in their job less than 6 weeks. Similarly, survey booklets were distributed via local Civilian Personnel Offices to civilians holding the following occupational series: 3653,

Asphalt Worker; 5703, Motor Vehicle Operator; 5705, Tractor Operator; 5716, Engineering Equipment Operator; 5725, Crane Operator; and 5767, Airfield Clearing Equipment Operator. Military participants were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center. Names and locations of civilian participants were identified by the Air Force Civilian Personnel Management Center.

Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount spent).

To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across MAJCOMs and military and civilian paygrade groups. Table 1 reflects the MAJCOM distribution of assigned military AFSC 3E2X1 personnel as of November 1994. Table 2 reflects the paygrade distribution for military personnel. The 1,579 military respondents in the final sample represent 67 percent of the total assigned military personnel. As reflected in these tables, the survey sample is an excellent representation of the career ladder's military population. Of the 685 civilians eligible to participate; only 177 provided usable returns (see Table 3).

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. While most participants in the survey process completed a USAF JI, selected senior AFSC 3E2X1 personnel were asked to complete booklets providing judgments on task training emphasis (TE) or task difficulty (TD). The TE and TD booklets were processed separately from the JIs. The information gained from task factor data is used in various analyses and is a valuable part of the training decision process.

Training Emphasis (TE). TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 52 senior NCOs from the career ladder who completed a TE booklet were asked to select tasks they felt required some sort of structured training for entry-level

TABLE 1

MAJCOM DISTRIBUTION OF AFSC 3E2X1 MILITARY PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
ACC	33	31
PACAF	15	12
AFMC	13	14
AMC	10	12
AETC	10	12
USAFE	8	7
AFSPACECOM	7	9
OTHER	3	3

Total Military Assigned - 2,373*

Total Military Eligible for Survey - 2,126

Total Military in Sample - 1,579

Percent of Eligible Military in Sample - 74%

Percent of Assigned Military in Sample - 67%

* Assigned strength as of November 1994

TABLE 2
PAYGRADE DISTRIBUTION OF MILITARY
SURVEY SAMPLE

PAYGRADE	PERCENT OF ASSIGNED (N=2,373)*	PERCENT IN SAMPLE (N=1,579)
E-1 to E-3	28	29
E-4	29	28
E-5	22	24
E-6	11	11
E-7	8	7
E-8	2	1
E-9	**	**

* Assigned strength as of November 1994

** Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 3

DISTRIBUTION OF AFSC 3E2X1 CIVILIAN PERSONNEL

<u>PAY PLAN/ PAYGRADE</u>	<u>PERCENT OF SAMPLE</u>
WG-06	2
WG-07	55
WG-08	17
WG-10	6
OTHER*	11

* Includes WG-01-05, -09, WL-08-10,
WS-04-14

<u>OCCUPATIONAL SERIES</u>	<u>PERCENT OF SAMPLE</u>
5716, Engineering Equipment Operator	67
5703, Motor Vehicle Operator	12
5705, Tractor Operator	7
5767, Airfield Clearing Equipment Operator	3
Other*	11

* Includes 3602, 3806, 5706, 5708, 5725, 8610, 3502, 5303,
5707

Total Civilians Assigned - 685
Total Civilians in Sample - 177
Assigned strength as of December 1993

personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident technical schools, field training detachments, mobile training teams, formal on-the-job training (OJT), or any other organized training method. There was strong agreement among the 52 raters as to which tasks require some form of structured training and which do not. The average TE rating was 3.02, with a standard deviation of 1.59. Any task with a TE rating of 4.61 or above is considered to have high TE.

Task Difficulty (TD). TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 54 senior NCOs who completed TD booklets were asked to rate the difficulty of each task using a 9-point scale (i.e., extremely low to extremely high). Interrater reliability was excellent, indicating very strong agreement among raters. Ratings were standardized so tasks have an average difficulty of 5.00, with a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS (Career Ladder Structure)

The occupational analysis process begins with an examination of the career ladder structure. The structure of jobs within the Pavements and Construction Equipment career ladder was examined on the basis of similarity of tasks performed and the relative percent of time spent ratings provided by job incumbents, independent of other specialty background factors.

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by respondents. A Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and the relative amount of time spent on the tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and then combines them to form a composite job description. In successive stages, new members are added to this initial group, or new groups are formed based on the similarity of tasks and time spent ratings. The basic group used in this hierarchical clustering process is the Job. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a Cluster. The structure of the career ladder is then defined in terms of jobs and clusters of jobs. The resulting job structure information can be used to evaluate the accuracy of career ladder documents (i.e., AFMAN 36-2108 *Specialty Descriptions*, the Career Field

Education and Training Plan, and Specialty Training Standards (STS)) and to gain a better understanding of current utilization patterns. The above terminology will be used in the discussion of the AFSC 3E2X1 career ladder structure.

Overview of Specialty Jobs

This survey contains both military and civilian members. The differences between the work performed by military and civilian members were compared and no notable differences were found. Structure analysis identified two clusters and seven jobs within the survey sample. Based on task similarity and relative time spent, the jobs performed by both AFSC 3E2X1 and civilian personnel are illustrated in Figure 1. A listing of those jobs is provided below. The stage (ST) number shown beside each title is a reference to computer-printed information; the number of personnel in each stage (N) is also shown.

- I. PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER (ST0044)
 - A. Pavements Maintenance and Construction Job (ST0116)
 - B. Construction Equipment Operator Job (ST0161)
 - C. Pavements Maintenance and Construction NCOIC Job (ST0083)
- II. SNOW REMOVAL JOB (ST0075)
- III. DOZER/SCRAPER OPERATOR JOB (ST0154)
- IV. GROUNDS MAINTENANCE JOB (ST0078)
- V. SWEEPER OPERATOR JOB (ST0110)
- VI. TRAINING JOB (ST0162)
- VII. MOBILITY/CONTINGENCY EQUIPMENT OPERATOR JOB (ST0080)
- VIII. VEHICLE CONTROL JOB (ST0028)
- IX. SUPERVISORY AND MANAGEMENT CLUSTER (ST0016)
 - A. Expedient Repair and Construction NCOIC Job (ST0102)
 - B. Supply Custodian Job (ST0092)
 - C. First-Line Supervisor Job (ST0085)
 - D. Readiness Manager Job (ST0133)
 - E. Senior Supervisor Job (ST0129)

Pavements and Construction Equipment Operator Jobs (N=1,756)

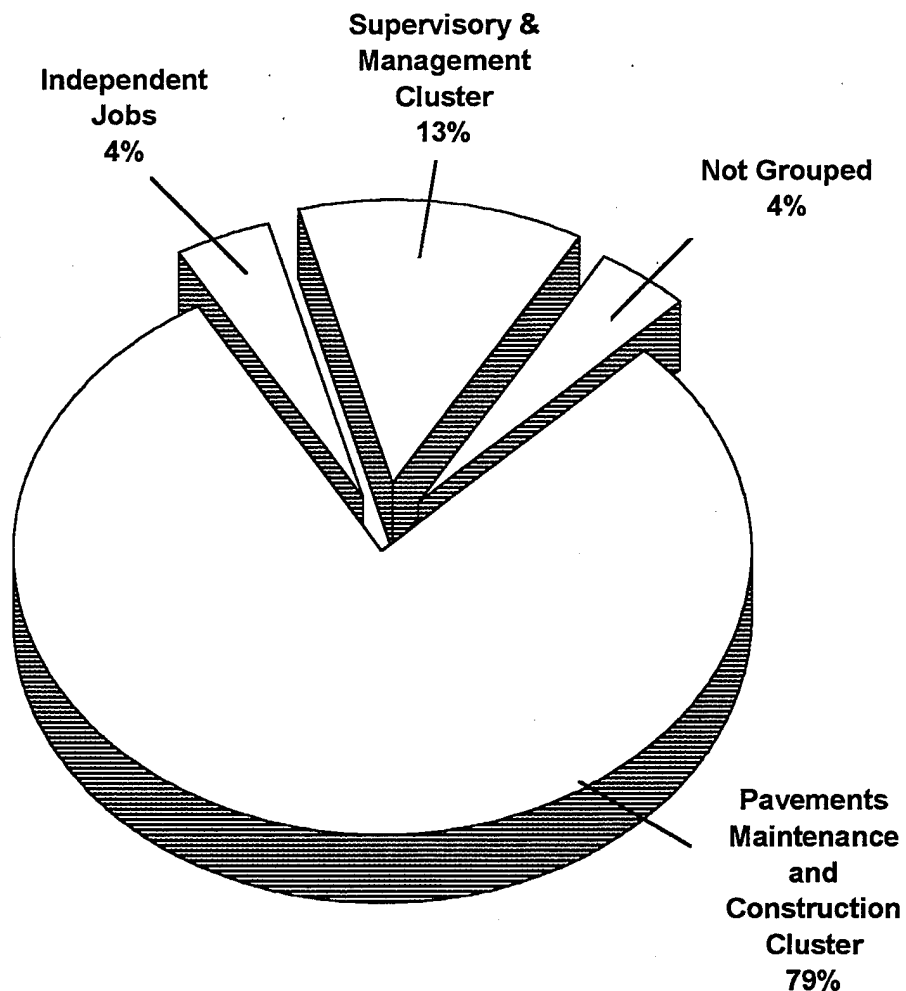


Figure 1

The military and civilian respondents forming these stages account for 96 percent of the survey sample. The remaining 4 percent were performing tasks or series of tasks that did not group with any of the defined jobs. Job titles given by respondents representative of these personnel include: System Integrator, Sheet Metal Mechanic, Sanitation Services, Crew Leader, Cement Worker, Dorm Manager, and Inmate Supervisor.

Group Descriptions

The following paragraphs contain brief descriptions of the clusters and jobs identified through the career ladder structure analysis. Table 4 presents the average relative time spent on duties by members of these specialty jobs. Selected background data for these jobs are provided in Table 5. Representative tasks for all the stages are contained in Appendix A.

Another way to illustrate the content of jobs is by summarizing tasks performed in common by incumbents across the career ladder. CODAP has a process of identifying groups of related tasks and grouping them together to form task modules (TMs). The basis for identifying these related tasks is called coperformance. Coperformance assumes that if incumbents perform task A and task B, there is a high likelihood that the two tasks share common skills and knowledge and can be trained together. CODAP calculates an index of coperformance for each task with every other task by examining the task performance patterns of all the survey respondents as a whole. Thus, the resulting TMs can be used to summarize and compare jobs. The TMs show the number of tasks included in a module, the percent time spent on tasks in that module, and average percent members performing the particular TM. Representative TMs are listed as part of the job description. The list of tasks within respective modules is presented in Appendix B.

I. PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER (ST0044).

The 1,388 members in this cluster account for 79 percent of the survey sample. Composed almost entirely of military members (with only 8 percent of these members civilian), these individuals perform the gamut of pavements maintenance and construction activities. This is the core job for this AFSC, with 77 percent of these incumbents' relative job time spent constructing, repairing, and maintaining roads, runways, and other paved areas, while operating related construction equipment. These individuals perform a very broad job, averaging 181 tasks, covering every duty in the JI.

Three jobs were identified within this cluster. The Pavements Maintenance and Construction Job includes the maintenance and construction of pavements and concrete structures. The Construction Equipment Operator Job includes the operation and maintenance of construction equipment. The Pavements Maintenance and Construction NCOIC Job involves the day-to-day pavements maintenance and construction tasks, and routine supervisory functions in a pavements and construction equipment shop.

A. Pavements Maintenance and Construction Job (ST0116). The 1,297 respondents in this job account for 74 percent of the survey sample. Eight percent of these individuals are civilians. Both military and civilians perform the core technical pavements

TABLE 4

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

DUTIES	PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER			
	PAVEMENTS MAINT AND CONSTRUCTION JOB (ST116)	CONSTRUCTION EQUIPMENT OPERATOR JOB (ST161)	PAVEMENTS MAINT AND CONSTRUCTION NCOIC JOB (ST083)	
A ORGANIZING AND PLANNING	2	2	10	
B DIRECTING AND IMPLEMENTING	3	3	9	
C EVALUATING AND INSPECTING	1	2	5	
D TRAINING	1	4	2	
E PERFORMING ADMINISTRATIVE AND SUPPLY ACTIVITIES	1	1	7	
F PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION ACTIVITIES	15	6	7	
G CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	15	1	*	
H CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS		*	*	
I CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	4	2	5	
J CONSTRUCTING BUNKERS AND REVETMENTS	*	-	-	
K PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	3	2	11	
L OPERATING FRONT-END LOADERS OR FORKLIFTS	12	20	7	
M OPERATING DUMP TRUCKS	5	5	5	
N OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	6	5	7	
O OPERATING GRADERS AND ATTACHMENTS	4	16	-	
P OPERATING DOZERS AND ATTACHMENTS	3	11	-	
Q OPERATING SCRAPERS	*	*	-	
R OPERATING CRANES AND ATTACHMENTS	2	1	2	
S OPERATING MISCELLANEOUS EQUIPMENT	9	10	15	
T PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	4	5	2	
U RIGGING OR HOISTING EQUIPMENT	1	1	*	
V PERFORMING RANGE SUPPORT ACTIVITIES	*	2	-	
W PERFORMING SPECIALIZED ACTIVITIES	1	1	2	
X PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2	*	2	

- Indicates no members or nonresponse
 * Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

DUTIES	SNOW REMOVAL JOB (ST075)	DOZER/SCRAPER OPERATOR JOB (ST154)	GROUNDS MAINT JOB (ST078)	SWEEPER OPERATOR JOB (ST110)
A ORGANIZING AND PLANNING	1	2	2	*
B DIRECTING AND IMPLEMENTING	2	2	1	5
C EVALUATING AND INSPECTING	1	1	*	*
D TRAINING	1	2	*	*
E PERFORMING ADMINISTRATIVE AND SUPPLY ACTIVITIES	1	1	1	*
F PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION ACTIVITIES	6	2	8	24
G CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	1	1	*	2
H CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	1	*	*	*
I CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	*	3	1	*
J CONSTRUCTING BUNKERS AND REVETMENTS	-	-	-	5
K PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	1	2	31	*
L OPERATING FRONT-END LOADERS OR FORKLIFTS	13	12	10	*
M OPERATING DUMP TRUCKS	6	7	11	*
N OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	3	1	12	*
O OPERATING GRADERS AND ATTACHMENTS	2	8	*	*
P OPERATING DOZERS AND ATTACHMENTS	1	28	-	*
Q OPERATING SCRAPERS	-	14	-	*
R OPERATING CRANES AND ATTACHMENTS	-	4	*	*
S OPERATING MISCELLANEOUS EQUIPMENT	7	6	4	61
T PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	50	1	16	3
U RIGGING OR HOISTING EQUIPMENT	*	3	*	*
V PERFORMING RANGE SUPPORT ACTIVITIES	-	-	*	*
W PERFORMING SPECIALIZED ACTIVITIES	*	-	*	*
X PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2	-	*	*

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

DUTIES	TRAINING JOB (ST162)	MOBILITY/ CONTINGENCY EQUIPMENT OPERATOR JOB (ST080)	VEHICLE CONTROL JOB (ST028)
A ORGANIZING AND PLANNING	4	5	11
B DIRECTING AND IMPLEMENTING	5	5	13
C EVALUATING AND INSPECTING	3	3	13
D TRAINING	40	2	10
E PERFORMING ADMINISTRATIVE AND SUPPLY ACTIVITIES	3	10	48
F PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION ACTIVITIES	13	10	1
G CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	5	-	*
H CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4	1	*
I CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	-	-	-
J CONSTRUCTING BUNKERS AND REVETMENTS	*	-	-
K PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	*	6	*
L OPERATING FRONT-END LOADERS OR FORKLIFTS	8	15	-
M OPERATING DUMP TRUCKS	2	-	-
N OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	1	*	-
O OPERATING GRADERS AND ATTACHMENTS	-	-	-
P OPERATING DOZERS AND ATTACHMENTS	1	-	-
Q OPERATING SCRAPERS	-	-	-
R OPERATING CRANES AND ATTACHMENTS	-	-	-
S OPERATING MISCELLANEOUS EQUIPMENT	5	15	-
T PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	-	-	*
U RIGGING OR HOISTING EQUIPMENT	-	4	-
V PERFORMING RANGE SUPPORT ACTIVITIES	-	2	-
W PERFORMING SPECIALIZED ACTIVITIES	3	15	-
X PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	1	20	5

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

DUTIES	SUPERVISORY AND MANAGEMENT CLUSTER						
	EXPEDIENT REPAIR AND CONSTRUCTION	SUPPLY CUSTODIAN	FIRST-LINE SUPERVISOR	READINESS MANAGER	SENIOR SUPERVISOR		
	NCOIC JOB (ST102)	JOB (ST092)	JOB (ST085)	JOB (ST133)	JOB (ST129)		
A ORGANIZING AND PLANNING	19	14	17	23	26		
B DIRECTING AND IMPLEMENTING	12	7	25	18	28		
C EVALUATING AND INSPECTING	12	4	20	19	20		
D TRAINING	2	1	14	19	7		
E PERFORMING ADMINISTRATIVE AND SUPPLY ACTIVITIES	10	51	7	11	9		
F PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION ACTIVITIES	2	2	1	-	2		
G CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	*	*	1	-	*		
H CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	-	*	*	-	*		
I CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	2	-	-	-	1		
J CONSTRUCTING BUNKERS AND REVETMENTS	-	-	-	-	*		
K PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	-	-	-	-	*		
L OPERATING FRONT-END LOADERS OR FORKLIFTS	*	2	6	1	1		
M OPERATING DUMP TRUCKS	-	*	1	*	*		
N OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	-	-	-	*	*		
O OPERATING GRADERS AND ATTACHMENTS	-	-	*	-	*		
P OPERATING DOZERS AND ATTACHMENTS	-	-	-	*	*		
Q OPERATING SCRAPERS	-	-	-	-	*		
R OPERATING CRANES AND ATTACHMENTS	-	-	-	*	*		
S OPERATING MISCELLANEOUS EQUIPMENT	*	1	2	1	*		
T PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	-	1	3	*	1		
U RIGGING OR HOISTING EQUIPMENT	-	-	-	*	*		
V PERFORMING RANGE SUPPORT ACTIVITIES	-	-	-	-	-		
W PERFORMING SPECIALIZED ACTIVITIES	*	-	-	1	*		
X PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	39	15	2	6	1		

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 5

SELECTED BACKGROUND DATA FOR SPECIALTY CLUSTERS AND JOBS

	PVMTS MAINT & CONSTR CLUSTER				
	PVMTS		PVMTS		
	MAINT & CONSTR JOB	CONSTR EQUIP OPER JOB	MAINT & CONSTR NCOIC JOB	SNOW REMOVAL JOB	DOZER/SCRAPER OPER JOB
NUMBER IN GROUP	1,297	23	8	19	6
PERCENT OF SAMPLE	74%	1%	*	1	1%
PERCENT IN CONUS	79%	83%	88%	89%	100%
DAFSC DISTRIBUTION:					
3E231	38%	17%	0%	11%	33%
3E251	46%	48%	38%	16%	50%
3E271	8%	22%	38%	11%	0%
3E291/3E000	0%	0%	0%	0%	0%
Other - Civilians	8%	13%	25%	63%	17%
PREDOMINANT GRADE(S):					
AVG MONTHS IN CAREER FIELD	E-5/6	E-5	E-5/6	E-5	E-4
AVG MONTHS IN SERVICE	72	105	162	104	49
PERCENT WITH 4 YEARS TIME IN CAREER FIELD (TICF)	75	111	173	109	50
PREDOMINANT PAY PLAN/GRADE(S):	42%	21%	0%	10%	34%
PREDOMINANT CIVILIAN SERIES	WG-10	WG-08/10	WG-10/WS-07	WG-08	WG-08
AVG MONTHS IN SERIES	5716	5716	5716/5703	5716	5716
AVG MONTHS IN FEDERAL CIVIL SERVICE	152	96	145	68	108
	200	243	214	68	252
PERCENT SUPERVISING	26%	35%	50%	5%	33%
AVG NUMBER OF TASKS PERFORMED	188	122	86	60	84

* Less than 1 percent

TABLE 5 (CONTINUED)

SELECTED BACKGROUND DATA FOR SPECIALTY CLUSTERS AND JOBS

	GROUND MAINT JOB	SWEEPER OPER JOB	TRAINING JOB	MOBILITY/ CONTING EQUIP OPER JOB	VEHICLE CONTROL JOB
NUMBER IN GROUP	24	5	5	5	11
PERCENT OF SAMPLE	1%	*	*	*	1%
PERCENT IN CONUS	100%	100%	100%	100%	82%
<u>DAFSC DISTRIBUTION:</u>					
3E231	5%	0%	0%	0%	0%
3E251	4%	20%	80%	80%	45%
3E271	0%	0%	20%	20%	36%
3E291/3E000	0%	0%	0%	0%	9%
Other - Civilians	88%	80%	0%	0%	9%
PREDOMINANT GRADE(S):	E-4	E-5	E-5	E-4	E-5
AVG MONTHS IN CAREER FIELD	41	188	123	98	172
AVG MONTHS IN SERVICE	42	191	133	110	183
PERCENT WITH 4 YEARS TIME IN CAREER FIELD (TICF)	8%	0%	0%	40%	0%
PREDOMINANT PAY PLAN/GRADE(S):	WG-06	WG-08/09	0	0	WL-08
PREDOMINANT CIVILIAN SERIES	5705	5716/5767	0	0	3602
AVG MONTHS IN SERIES	116	87	0	0	162
AVG MONTHS IN FEDERAL CIVIL SERVICE	193	227	0	0	251
PERCENT SUPERVISING	8%	0%	0%	40%	0%
AVG NUMBER OF TASKS PERFORMED	41	8	63	38	13

* Less than 1 percent

TABLE 5 (CONTINUED)

SELECTED BACKGROUND DATA FOR SPECIALTY CLUSTERS AND JOBS

	SUPERVISORY AND MANAGEMENT CLUSTER					
	EXPEDNT		FIRST-		READINESS	
	REPAIR & CONSTR		LINE SUPVR		MGR	
	JOBS	CUSTODY	JOBS	JOBS	JOBS	JOBS
NUMBER IN GROUP	7	5	13	14	123	
PERCENT OF SAMPLE	*	*	1%	1%	7%	
PERCENT IN CONUS	71%	80%	85%	93%	84%	
<u>DAFSC DISTRIBUTION:</u>						
3E231	0%	0%	8%	0%	1%	
3E251	43%	60%	23%	21%	14%	
3E271	57%	40%	69%	79%	59%	
3E291/3E000	0%	0%	0%	0%	15%	
Other - Civilians	0%	0%	0%	0%	11%	
PREDOMINANT GRADE(S):	E-5/6	E-5	E-6/7	E-5/6	E-5/6	
AVG MONTHS IN CAREER FIELD	152	168	164	175	176	
AVG MONTHS IN SERVICE	154	171	166	191	192	
PERCENT WITH 4 YEARS TIME IN CAREER FIELD (TICF)	0%	0%	0%	7%	4%	
PREDOMINANT PAY PLAN/GRADE(S):	0	0	0	0	varied	
PREDOMINANT CIVILIAN SERIES	0	0	0	0	5716	
AVG MONTHS IN SERIES	0	0	0	0	228	
AVG MONTHS IN FEDERAL CIVIL SERVICE	0	0	0	0	242	
PERCENT SUPERVISING	43%	60%	62%	57%	80%	
AVG NUMBER OF TASKS PERFORMED	46	23	27	47	69	

* Less than 1 percent

maintenance and construction activities. Thirty percent of their relative job time is spent constructing and maintaining pavements and performing general pavements and construction activities. An additional 32 percent of their relative job time is spent operating pavements and construction equipment. These members perform an average of 188 tasks, which is the highest average number of tasks performed by any other job in the survey sample. Typical tasks include:

- perform operator inspections and maintenance on pavements and construction heavy equipment
- haul materials using dump trucks
- break asphalt or concrete using jackhammers
- finish concrete by hand
- finish concrete using brooms
- stockpile materials using front-end loaders
- level concrete using concrete screeds
- drive stakes
- finish concrete using bullfloats
- edge concrete
- place or remove concrete forms

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	4	89
0002	level, backfill, or stockpile with front-end loaders	10	6	88
0003	load or haul with forklifts and front-end loaders	4	2	85
0070	inspect or maintain equipment	3	3	92
0071	cut or compact asphalt	3	2	78
0085	repair pavements	3	2	87

These representative TMs illustrate the concentration on constructing and maintaining pavements and concrete structures with related construction equipment.

Forty-two percent of these military members are in their first enlistment (highest percent of first-enlistment members in any job within the survey sample). These airmen average over 6 years TAFMS, while civilian members average over 16 and 1/2 years Federal service. Forty-six percent of the military members hold the 5-skill level. Of the 107 civilians in this job, 46 percent are in the paygrade of WG-10. Seventy-five percent of these civilians are in Occupational Series 5716, Engineering Equipment Operator.

B. Construction Equipment Operator Job (ST0161). The primary responsibilities of these 23 individuals is operating pavements and construction equipment and related attachments. Seventy percent of their relative job time is spent operating pavements and construction equipment to cut, move, dig, grade, and roll earth, sand, stone, and other materials, as well as maintain ditches, road shoulders, and bends. These operators perform an average of 122 tasks (second highest average number of tasks performed by any job in the survey sample). Typical operator tasks are:

- haul materials using front-end loaders with multipurpose buckets
- load materials using front-end loaders with buckets
- spread materials using front-end loaders
- backfill using graders with turntable blades
- remove or replace grader cutter edges or end-bits
- haul construction equipment using drop-gooseneck trailers
- spread materials using graders with turntable blades
- level areas using graders
- maintain unpaved surfaces with graders

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	4	76
0002	level, backfill, or stockpile with front-end loaders	10	10	92
0003	load or haul with forklifts and front-end loaders	4	4	91

0005	excavate with front-end loaders	4	3	75
0008	level or fill with dozers	6	4	74
0009	operate or maintain areas with graders	16	13	74
0070	inspect or maintain equipment	3	3	71

These representative TMs illustrate the heavy concentration on operating and maintaining construction equipment.

Forty-eight percent of these military equipment operators hold the 5-skill level, and average over 9 years TAFMS. The predominant paygrade for these military members is E-5. There are 3 civilian equipment operators, averaging over 20 years Federal service. Forty-three percent of all operators indicated they are Air Force Reserve.

C. Pavements Maintenance and Construction NCOIC Job (ST0083). Although technical AFSC-specific activities are performed by these 8 individuals, 23 percent of their relative job time is spent performing, organizing and planning, directing and implementing, inspecting and evaluating, and training activities. Seventy-five percent of these members report supervising an average of six people. Forty-five percent of their relative job time is spent operating pavements and construction equipment and performing fencing and grounds maintenance activities (34 and 11 percent, respectively). Of the average 86 tasks performed, the following are representative:

- coordinate work activities with other civil engineering shops
- perform shop maintenance on mowers
- fill water distributors
- dump materials from dump trucks with tailgate down
- direct grounds maintenance operations
- annotate civilian time cards or forms
- attach or remove tractor attachments
- load or off-load skid-steer loaders on trailers
- spread materials from dump trucks
- supervise civilian personnel

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	5	82
0039	maintain grounds	5	5	70
0052	organize or plan work activities	5	5	65
0056	supervise civilians	4	4	59
0084	clear trees and vegetation	2	2	75

These TMs illustrate the variety of work performed, ranging from the routine pavements and construction tasks to the day-to-day management and supervisory activities.

Two of these eight members are civilian, averaging over 17 and 1/2 years Federal service. Their military counterparts average over 14 years TAFMS. The average military paygrades are E-5 and E-6; one civilian is in the pay plan and grade of WS-07 and one in WG-10. Five of the eight indicate they work in a grounds maintenance shop, with the remaining three indicating they work in a pavements and construction equipment section.

II. SNOW REMOVAL JOB (ST0075). The responsibilities of these members are limited in scope. These 19 individuals spend half of their relative job time on snow removal and ice control activities. An additional 32 percent of their relative job time is spent operating equipment used for the purpose of snow removal and ice control. Sixty-three percent of these members are civilian, with the majority of these individuals in the Engineering Equipment Operator occupational series (occupational series 5716). Performing an average of 60 tasks, only 30 tasks account for over 50 percent of their relative job time. Typical snow removal tasks are:

- clean snow from snow removal equipment
- remove snow using air blast snow sweepers
- install or remove plow blade cutting edges
- remove snow or ice using front-end loaders
- clear snow or ice from runway lights
- remove snow using rollover snowplows
- remove snow using dump trucks with snowplow attachments

install or remove shoes or castor wheels
 remove snow using dump trucks with front-mounted brooms
 haul snow

The representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	5	48
0002	level, backfill, or stockpile with front-end loaders	10	8	48
0030	remove snow with push-type equipment	18	36	71

These TMs indicate the emphasis on removing snow and operating related equipment.

Twelve of these 19 individuals are civilian, averaging over 5 and 1/2 years of Federal service (lowest average amount of Federal service time in the survey sample). Their military counterparts average over 9 years TAFMS. The predominant civilian paygrade is WG-08. Average military paygrade is E-5.

III. DOZER/SCRAPER OPERATOR JOB (ST0154). These six incumbents spend 42 percent of their relative job time operating dozers and scrapers. Dozers and scrapers are very versatile pieces of earthmoving equipment, allowing the operator to first clear land, move earth and large rocks, and then load, haul, and dump these materials. An additional 38 percent of their relative job time is spent operating other pavements maintenance and construction equipment. These individuals perform an average of 84 tasks. The following tasks exemplify earthmoving tasks:

maintain sanitary fills using dozers
 cut sanitary fills using dozers
 spread scraper loads
 haul materials using scrapers
 cut sanitary fills using scrapers

downhill cut with dozers
 dump materials using scrapers
 excavate surface areas using dozers

The representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	6	67
0002	level, backfill, or stockpile with front-end loaders	10	9	52
0008	level or fill with dozers	6	9	86
0046	earthmoving or excavate with scrapers	13	21	67
0080	perform landfill operations	3	8	100

These TMs illustrate the strong concentration on earthmoving operations.

Predominantly military (5 of the 6 individuals), these operators are the second least experienced group in the survey sample, averaging only a little over 4 years TAFMS. The only civilian operator in this job averages 21 years Federal service, with 9 years in occupational series 5716, Engineering Equipment Operator. Five of these six incumbents are assigned to AFSPACECOM.

IV. GROUNDS MAINTENANCE JOB (ST0078). Maintaining fences and grounds are the primary responsibilities of these 24 members, accounting for 31 percent of their relative job time. An additional 37 percent of their relative job time is spent operating equipment to haul and dump materials. Eighty-eight percent of these individuals are assigned to a grounds maintenance shop. Of the average 41 tasks performed by these incumbents, typical grounds maintenance tasks include:

cut grass using tractors with mower attachments
 cut grass using riding lawn mowers
 cut grass using towed mowers

- perform shop maintenance on mowers
- haul materials using dump trucks
- remove sod using sod cutters
- remove tree stumps using tractors with stump grinder attachments
- clear trees, vegetation, shrubs, or debris from areas using handtools
- dump materials from dump trucks with tailgate down

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	10	60
0029	maintain grounds	5	19	76
0068	handling soils	4	4	43
0084	clear vegetation and trees	2	4	58

These TMs illustrate the heavy emphasis on grounds maintenance activities.

Eighty-eight percent of these members are civilian (highest percentage of civilians in any job in the survey sample) averaging over 16 years Federal service and are predominantly in the paygrade of WG-06. The military members average only 3 and 1/2 years TAFMS (lowest average TAFMS for any group within the survey sample) and are in the paygrades of E-3 or E-4.

V. SWEEPER OPERATOR JOB (ST0110). Averaging only eight tasks (lowest average number of tasks performed by any group within the survey), these five individuals operate sweepers to clean normal debris that accumulates on streets, parking lots, and other flat surfaces. Their job is very limited in scope, as only 4 tasks account for over 50 percent of their relative job time. Typical sweeper tasks include:

- sweep airfield pavements using multipurpose sweepers
- sweep areas, other than airfields, using multipurpose sweepers
- vacuum areas using handheld-sweeper hose attachments
- perform operator inspections and maintenance on pavements
- and construction equipment vehicles

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0070	inspect or maintain equipment	3	14	27
0082	perform sweeping operations	9	65	42

With four of the five members being civilian, these members represent some of the most senior and experienced members in the career ladder. Civilians average almost 19 years Federal service and are in the paygrades of WG-07 or WG-08. The military average almost 16 years TAFMS and are in the paygrade of E-5. Civilians are in one of two occupational series, 5718, Engineering Equipment Operator, or 5767, Airfield Clearing Equipment Operator.

VI. TRAINING JOB (ST0162). Training personnel on pavements and construction equipment activities and on operating heavy equipment are the primary responsibilities of these five individuals. Forty percent of their relative job time is spent in the training duty, with an additional 13 percent of their relative job time spent instructing operators on general pavements and construction equipment activities. Representative tasks of the average 63 tasks performed include:

- administer tests
- write test questions
- conduct resident course classroom training
- score tests
- prepare training aids
- draft lesson plans
- haul materials using front-end loaders with forklift attachments
- attach and remove multipurpose buckets on front-end loaders
- perform operator inspections and maintenance on pavements and construction equipment vehicles
- perform operator inspections and maintenance on pavements and construction heavy equipment

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul w/ dump trucks	5	2	56
0002	level, backfill, or stockpile with front-end loaders	10	5	74
0003	load or haul with forklifts and front-end loaders	4	3	65
0060	perform training activities	19	34	47
0070	inspect or maintain equipment	3	5	93
0075	evaluate or maintain training progress	3	5	53

As illustrated, training activities is the focus of concentration for these members. The 19 training tasks in TM60 account for 34 percent of their relative job time.

Four of the five trainers are in the paygrade of E-5, with the remaining individual in the paygrade of E-6. These trainers average over 11 years TAFMS. Four of the five members hold the 5-skill level.

VII. MOBILITY/CONTINGENCY EQUIPMENT OPERATOR JOB (ST0080). Performing pavements maintenance and construction equipment activities in a mobility or contingency status defines the nature of work performed by these five incumbents. These members spend 20 percent of their relative job time performing pavements and construction equipment tasks in a mobility/contingency mode. Of the average 38 tasks performed by these members, representative tasks include:

- haul material using forklifts
- prepare palletized equipment for deployment
- load or off-load materials or equipment using forklifts
- haul materials using skid-steer loaders with forklift attachments
- stripe or mark pavements, other than airfield
- prepare equipment or vehicles for airlift deployments

prepare equipment or vehicles for sealift deployments
 tow equipment using forklifts
 erect or strike tents, other than TEMPER tents

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0003	load or haul with forklifts and front-end loaders	4	10	60
0029	maintain grounds	5	6	48
0036	prepare for deployment/set up TEMPER tents	5	11	68

These TMs emphasize the mobility/contingency environment that these members can be expected to perform their job.

The predominant skill level held by these airmen is the 5-skill level. With a little over 9 years TAFMS, these incumbents are predominantly in the paygrade of E-4. All five of these airmen are assigned to Air Combat Command (ACC).

VIII. VEHICLE CONTROL JOB (ST0028). These 11 members spend 48 percent of their relative job time administratively controlling the vehicles used by pavements maintenance and construction equipment personnel. An additional 47 percent of their relative job time is spent performing general supervisory and management activities (i.e., tasks from duties A, B, C, and D). As required by their job, these incumbents work with specific forms to control their vehicles. More than half of these individuals use such forms as the following in their jobs daily: AF 601 (Equipment Action Request) and AF 1800 (Operator's Inspection Guide/Trouble Report (General Purpose Vehicles)) (77 and 82 percent members performing, respectively). These members perform an average of 13 tasks, with the following being typical:

research equipment authorizations
 locate information in technical or commercial publications
 complete accident or incident report forms
 investigate accidents or incidents

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0055	organize or plan management activities	6	6	14
0059	perform administrative and supply activities	13	21	17
0081	maintain workcenter records	7	7	12

As illustrated, these TMs show the administrative nature of this job.

Only one of these 11 incumbents is civilian, in the paygrade of WL-09, averaging almost 21 years Federal service. The military incumbents are predominantly in the paygrades E-5 and E-6 (45 and 27 percent, respectively), averaging over 15 years TAFMS. Eight of the 11 indicated their job title was Vehicle Control NCO/Officer.

IX. SUPERVISORY AND MANAGEMENT CLUSTER (ST0016). Comprising the most senior members in the survey sample, these 219 members (making up 12 percent of the survey sample) spend 87 percent of their relative job time performing staffing and supervisory functions necessary for the day-to-day operations of a pavements maintenance and construction equipment organization. Only 8 percent of this cluster (17 individuals) are civilians and can be found almost exclusively in one job (i.e., Senior Supervisor Job). These civilians average 19 years Federal service (highest average number of years in Federal service in all the survey sample), while their military counterparts average around 14 years TAFMS. Sixty-four percent of these members perform direct supervisory activities, supervising an average of eight people.

Five jobs were identified in this cluster. The following narrative describes the work performed.

A. Expedient Repair and Construction NCOIC Job (ST0102). These seven airmen are responsible for performing expedient emergency repairs required to return a base to operational status after a disaster or enemy attack. Thirty-nine percent of their relative job time is spent performing mobility and contingency activities. An additional 43 percent of their relative job time is spent performing very specific management activities (i.e., tasks in duties A, B, and C) as limited to repair operations. These NCOICs perform an average of 46 tasks. Typical expedient repair and construction tasks include:

fill bomb-damaged areas with select fill
 clear crater upheaves
 preposition select fill material for crater repair
 clean runway surface damaged areas
 fill bomb-damaged areas with blown debris
 finish grade-to-surface roughness specifications
 tow RRR patches
 coordinate work activities with other civil engineering shops
 coordinate work progress with base civil engineering schedules
 conduct or participate in staff meetings

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0034	repair craters before laying repair surfaces	6	12	86
0035	install or remove AM-2 matting accessories	4	3	54
0037	maintain or use prefab concrete slabs	5	5	46
0053	organize or plan work activities	5	8	54
0078	perform pre-attack actions	5	6	54

As indicated by these TMs, tasks covering repair activities define the essence of this job.

These airmen are predominantly in the paygrade of E-5 or E-6, with the remaining airmen in paygrade E-7. These members average almost 13 years TAFMS.

B. Supply Custodian Job (ST0092). Fifty-one percent of these five NCOs' relative job time is spent performing administrative and supply activities. Their primary responsibility is to ensure necessary supplies and equipment are available when required. An additional 26 percent of their relative job time is dedicated to management actions for acquiring supplies. These custodians perform an average of 23 tasks. Typical supply tasks include:

- validate bench stock requirements
- complete purchase request forms, other than for equipment
- estimate bench stock requirements
- inventory equipment, tools, or supplies
- turn-in equipment, tools, or supplies
- determine requirements for space, personnel, equipment, or supplies
- enter supply data into Civil Engineer Material Acquisition Systems (CEMASS)

The representative TM for this job is:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0059	perform administrative and supply activities	13	40	62

TM 0059 emphasizes the strong concentration on supply activities.

Averaging over 14 years TAFMS, three of these five airmen hold the 5-skill level. The predominant paygrade for these individuals is E-5 or E-6, with the remaining individual in paygrade E-4.

C. First-Line Supervisor Job (ST0085). Seventy-seven percent of these 13 incumbents' relative job time is spent on directing and implementing, inspecting and evaluating, organizing and planning, and training activities. Eight of these 13 members report supervising an average of 4 airmen each. These members spend an additional 7 percent of their relative job time on administrative and supply activities. These NCOs perform an average of 27 tasks. The following tasks demonstrate the nature of work performed by these first-line supervisors.

- write EPRs
- conduct performance feedback worksheet (PFW) evaluation sessions
- counsel subordinates on personal or military-related problems
- conduct OJT

supervise Pavements and Construction Equipment
Apprentices (AFSC 3E231)
conduct or participate in staff meetings
determine work priorities

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0052	perform management/supervisory activities	6	23	83
0053	organize or plan work activities	5	8	37
0075	evaluate or maintain training progress	3	5	49

These TMs illustrate the management, supervisory, and training activities typical of the work performed by these airmen.

Sixty-nine percent of these incumbents hold the 7-skill level and average over 13 and 1/2 years TAFMS. Most members are in the paygrade of E-6 (54 percent).

D. Readiness Manager Job (ST0133). These 14 airmen manage mobility/contingency planning and train pavements maintenance and construction personnel in all aspects of readiness operations. Eighty percent of their relative job time is spent in the organizing and planning, directing and implementing, inspecting and evaluating, and training functions as applied to ensuring an air base and facilities are in a constant state of operational readiness. The following are typical of the average 47 tasks performed:

determine training requirements
schedule advanced, special, or ancillary training
conduct training conferences or briefings
evaluate RRR exercises
direct RRR exercises
plan Rapid Runway Repair (RRR) operations
plan special projects

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0055	organize or plan management activities	6	9	63
0060	perform training activities	19	14	30
0076	manage RRR operations/exercises	3	4	64

These TMs demonstrate the heavy emphasis in this job on management and training activities.

The predominant skill level held by these individuals is the 7-skill level (79 percent). Sixty-four percent of these members are in the paygrade of E-7, with an additional 21 percent in the paygrade of E-5. They average almost 16 years TAFMS, with over 14 and 1/2 years in the career ladder.

E. Senior Supervisor Job (ST0129). Comprising the most senior and experienced individuals in the career ladder, these 123 members account for 7 percent of the survey sample. Eleven percent of the members in this job are civilian (14 people), with the majority of these members holding the Engineering Equipment Operator series (occupational series 5716). Both military and civilian members perform supervisory duties almost exclusively, as 83 percent of their relative job time is spent on supervisory, management, and training functions. Eighty percent of these individuals report supervising an average of 12 members. In addition to supervision, 11 percent of their relative job time is devoted to performing administrative and supply activities and general pavements and equipment activities. Of the typical 69 supervisory tasks, the following are representative:

- determine work priorities
- coordinate work activities with other civil engineering shops
- counsel subordinates on personal or military-related problems
- write EPRs
- supervise civilian personnel

supervise Pavements and Construction Equipment Craftsmen (AFSC 3E271)
supervise Pavements and Construction Equipment Journeymen (AFSC 3E251)

Representative TMs for this job include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0051	direct horizontal operations	5	4	55
0052	perform management/supervisory activities	6	8	73
0053	organize or plan work activities	5	9	89
0054	evaluate or implement performance standards	5	6	79
0055	organize or plan management activities	6	5	62
0056	supervise civilians	4	5	62

As illustrated, management and supervisory activities are the focus of concentration for these members.

With military members averaging 16 years TAFMS and civilian members averaging over 20 years Federal service, these are the most senior and experienced members in the survey sample. Sixty-four percent of the military members are in the paygrade of E-6 and E-7. These military members predominantly hold the 5-skill level (59 percent). Civilian members' paygrades range from WS-05 through WS-14.

Comparisons of Specialty Jobs

Two clusters and seven jobs were identified in the career ladder structure analysis. One of the two clusters was directly involved in performing the technical duties and tasks pertaining to pavements and construction equipment activities. The other cluster involved those activities necessary for support and control of the working environment and the mobility/contingency environment.

Four of the seven jobs reflected the same technical duties and tasks pertaining to pavements and construction equipment as did the above mentioned cluster; however, the work in these jobs differed as a result of the limited scope of the work performed and the specificity of the equipment operated (i.e., snow removal, dozer/scrapper, grounds maintenance equipment, and sweeper). One job, the Training Job, handled the training of personnel on pavements and construction equipment and on operating heavy equipment. Another job, Mobility/Contingency Equipment Operator, concentrated performance of all pavements and construction equipment activities to a mobility/contingency environment. The Vehicle Control Job involved the administrative control of the vehicles used by pavements and construction equipment personnel.

The majority of the members in this career ladder are performing a common core of tasks centering around pavements construction and maintenance using construction and associated equipment. Overall, personnel are performing jobs as defined in the current classification structure.

Comparison of Current Job Descriptions to Previous Survey Findings

The results of the specialty job analysis were compared to those of OSR AFPT 90-551-443, Pavements Maintenance and Construction Equipment, dated September 1991. After reviewing the jobs identified in 1991, all of the groups with substantial numbers of personnel could be matched to similar jobs in the current study (see Table 6). Even though some comparable groups from 1991 to 1996 reflect different percentages of the sample, this variation could generally be attributed to modifications in the task list or to the analysis approach used.

Four jobs (accounting for less than 3 percent of the total sample) identified in the current sample did not have a direct match in the 1991 career ladder structure. These jobs include Sweeper Operator, Mobility/Contingency Equipment Operator, Expedient Repair and Construction NCOIC, and Readiness Manager. The last three of the four jobs emphasize maintaining and constructing pavements for an environment in the state of constant readiness. There were 8 jobs (accounting for about 8 percent of the survey sample) identified in the 1991 career ladder structure that did not have a direct match in the current study. Several of the more defined jobs in the 1991 study can be grouped together into a slightly broader job in this current study. For example, in the 1991 study, some of jobs centered around specific equipment pieces, yet in this study the data grouped such that these jobs were included in the Pavements Maintenance and Construction Job. Aside from these minor variations involving small numbers of personnel, the vast majority of the current sample were found to be performing jobs identified in 1991, thus displaying a relatively stable career ladder over time.

TABLE 6

SPECIALTY JOB COMPARISONS BETWEEN CURRENT AND 1991 SURVEYS

CURRENT SURVEY (N=1,756)	PERCENT OF SAMPLE	1991 SURVEY (N=2,488)	PERCENT OF SAMPLE
PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER (N=1,388)	79	-	
Pavements Maintenance and Construction Job (N=1,297)	74	Base Area Maintenance Technician (N=1,637)	66
Construction Equipment Operator Job (N=23)	1	Construction Equipment Operator (N=23)	1
Pavements Maintenance and Construction NCOIC Job (N=8)	*	-	
SNOW REMOVAL JOB (N=19)	1	Snow Removal Specialist (N=10)	*
DOZER/SCRAPER OPERATOR JOB (N=6)	1	Dozer/Scraper Operator Job (N=10)	*
GROUND MAINTENANCE JOB (N=24)	1	Grounds Maintenance Specialist (N=76)	3
SWEEPER OPERATOR JOB (N=5)	*	-	
TRAINING JOB (N=5)	*	Heavy Equipment Instructor (N=11)	*
MOBILITY/CONTINGENCY EQUIPMENT OPERATOR JOB (N=5)	*	-	
VEHICLE CONTROL JOB (N=11)	1	Vehicle Controller (N=28)	1

- Indicates no match in report

* Indicates less than 1 percent

TABLE 6 (CONTINUED)

SPECIALTY JOB COMPARISONS BETWEEN CURRENT AND 1991 SURVEYS

CURRENT SURVEY (N=1,756)	PERCENT OF SAMPLE	1991 SURVEY (N=2,488)	PERCENT OF SAMPLE
SUPERVISORY AND MANAGEMENT CLUSTER (N=168)	12	-	
Expedient Repair and Construction NCOIC Job (N=7)	*	-	*
Supply Custodian Job (N=5)	*	Supply NCO (N=6)	
First-Line Supervisory Job (N=13)	1	-	
Readiness Manager Job (N=14)	1	-	
Senior Supervisor Job (N=123)	7	Supervisor (N=246)	10
-		Dump Truck Driver (N=12)	*
-		Pavement Maintenance Specialist (N=149)	6
-		Grader Operator (N=7)	*
-		Crane Operator (N=9)	*
-		Range Operations Specialist (N=10)	*
-		Construction Equipment Inspector (N=5)	*
-		Engineering Support Manager (N=5)	*
-		Quality Assurance NCO (N=7)	*

- Indicates no match in report

* Indicates less than 1 percent

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as AFMAN 36-2108 *Specialty Descriptions* and the STS reflect what career ladder personnel are actually doing in the field and what is required of their members.

The distribution of skill-level groups across the career ladder specialty jobs is displayed in Table 7, while Table 8 offers another perspective by displaying the relative percent time spent on each duty across the skill-level groups. The Pavements Maintenance and Construction Equipment career ladder has 83 percent of the military sample holding either the 3- or 5-skill level. A typical pattern of progression is present, with personnel spending more of their relative time on duties involving supervisory, managerial, and training tasks as they move upward toward the 7- or 9-skill level, or the CEM code. It is also obvious, though, that 7-skill level personnel are still involved with technical task performance, as will be pointed out in the specific skill-level group discussions below.

Skill-Level Descriptions

Another way to illustrate these skill-level descriptions, as previously done with job descriptions, is to summarize tasks performed into TMs using the same procedure described at the beginning of the Career Ladder Structure section of this report. This allows for a very concise display of where skill-level groups spend most of their time and thus develops a comprehensive overview of each skill-level group. These modules can provide training personnel with groups of tasks on which to focus resident training and upgrade training to journeyman or craftsman. The TMs show the number of tasks included in a module, the percent time spent on tasks in that module, and an average percent members performing the particular TM. Representative TMs are listed as part of the skill-level descriptions. The list of modules with respective tasks is presented in Appendix B.

DAFSC 3E231. The 544 airmen in the 3-skill level group represent 34 percent of the survey sample. Ninety-five percent of these 3-skill level members are in the Pavements Maintenance and Construction Cluster (see Table 7). They perform an average of 143 tasks, with 72 tasks accounting for over 50 percent of their relative job time. Performing a highly technical job, 97 percent of their relative duty time is devoted to technical duties covering general pavement construction and maintenance activities, such as constructing and maintaining pavements, concrete structures, and drainage systems while operating various pieces of equipment (see Table 8). Table 9 displays representative tasks performed by the highest percentages of these airmen.

TABLE 7

DISTRIBUTION OF DAFSC 3E2X1 GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT)

SPECIALTY JOBS	DAFSC 3E231 (N=544)	DAFSC 3E251 (N=756)	DAFSC 3E271 (N=256)	DAFSC 3E291/3E000 (N=23)
I. PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER (N=1,388)	95	85	45	-
II SNOW REMOVAL JOB (N=19)	*	*	1%	1
III DOZER/SCRAPER OPERATOR JOB (N=6)	*	*	-	-
IV GROUNDS MAINTENANCE JOB (N=24)	*	*	-	-
V SWEEPER OPERATOR JOB (N=5)	-	*	-	-
VI TRAINING JOB (N=5)	-	-	*	-
VII MOBILITY/CONTINGENCY EQUIPMENT OPERATOR JOB (N=5)	-	*	*	-
VIII VEHICLE CONTROL JOB (N=11)	-	*	2	2
IX SUPERVISORY AND MANAGEMENT CLUSTER (N=219)	1	7	47	86
X NOT GROUPED (N=177)	3	5	4	5

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 8

AVERAGE PERCENT TIME SPENT PERFORMING DUTIES BY DAFSC 3E2X1 GROUPS
(RELATIVE PERCENT OF JOB TIME)

DUTIES	DAFSC 3E231 (N=544)	DAFSC 3E251 (N=756)	DAFSC 3E271 (N=256)	DAFSC 3E291/3E000 (N=23)
A. ORGANIZING AND PLANNING	1	3	16	29
B. DIRECTING AND IMPLEMENTING	1	4	17	24
C. EVALUATING AND INSPECTING	*	3	12	26
D. TRAINING	*	3	8	5
E. PERFORMING ADMINISTRATIVE AND SUPPLY ACTIVITIES	1	3	7	7
F. PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION ACTIVITIES	19	13	5	2
G. CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	17	13	5	1
H. CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4	3	2	*
I. CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3	3	2	*
J. CONSTRUCTING BUNKERS AND REVETMENTS	*	1	*	*
K. PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4	3	1	*
L. OPERATING FRONT-END LOADERS OR FORKLIFTS	14	11	5	1
M. OPERATING DUMP TRUCKS	7	4	2	*
N. OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	6	5	2	*
O. OPERATING GRADERS AND ATTACHMENTS	3	4	2	*
P. OPERATING DOZERS AND ATTACHMENTS	3	3	1	*
Q. OPERATING SCRAPERS	*	*	*	-
R. OPERATING CRANES AND ATTACHMENTS	1	2	1	*
S. OPERATING MISCELLANEOUS EQUIPMENT	9	9	4	*
T. PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	4	4	3	*
U. RIGGING OR HOISTING EQUIPMENT	*	1	1	*
V. PERFORMING RANGE SUPPORT ACTIVITIES	*	*	-	-
W. PERFORMING SPECIALIZED ACTIVITIES	*	1	1	*
X. PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2	3	3	3

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 9
REPRESENTATIVE TASKS PERFORMED BY
DAFSC 3E231 PERSONNEL
(N=544)

SELECTED TASKS		PERCENT MEMBERS PERFORMING
F145	Break asphalt or concrete using jackhammers	93
M398	Haul materials using dump trucks	92
F174	Perform operator inspections and maintenance on pavements and heavy construction equipment	90
L387	Stockpile materials using front-end loaders	89
M399	Spread materials from dump trucks	88
F156	Compact base course materials or subgrade using small powered equipment or hand tampers	88
M397	Dump materials from dump trucks with tailgate up	88
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	87
G205	Finish concrete by hand	87
L375	Level areas by backdragging using front-end loaders	87
F173	Perform operator inspections and maintenance on pavements and construction equipment attachments	86
G218	Level concrete using hand screeds	85
F144	Break asphalt or concrete using handtools, other than jackhammers	85
M400	Tow trailers or equipment using dump trucks	85
L377	Load materials using front-end loaders with buckets	84
L386	Spread materials using front-end loaders	84
G206	Finish concrete using brooms	83
L364	Backfill excavations using front-end loaders	82
M396	Dump materials from dump trucks with tailgate down	82
L362	Attach or remove forklift attachments on front-end loaders	82
G199	Cut concrete	81
G209	Finish concrete using bullfloats	81
L382	Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	81
G202	Drive stakes	81
F177	Place base course for materials	79
G203	Edge concrete	78

Average number of tasks performed = 143

Representative TMs for this 3-skill level group include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	5	87
0002	level, backfill, or stockpile with front-end loaders	10	8	82
0003	load or haul with forklifts and front-end loaders	4	3	75
0070	inspect or maintain equipment	3	4	88
0085	repair pavements	3	3	85

These TMs indicate the scope of 3-skill level members' activities and provide emphasis and direction for training, or as a minimum, a starting point for resident training; with an emphasis on general pavement and construction activities and operating those vehicles necessary to do the job.

DAFSC 3E251. The 756 airmen in the 5-skill level group constitute 49 percent of the survey sample and perform an average of 165 tasks, with 117 tasks accounting for over half of their relative job time. Eighty-five percent of these 5-skill level members are in the Pavements Maintenance and Construction Cluster (see Table 7). Performing a highly technical job, 87 percent of their relative job time is devoted to duties covering general pavements and construction activities (see Table 8). Table 10 displays representative tasks performed by the highest percentages of these airmen. Table 11 displays those tasks that reflect differences between the 3- and 5-skill level groups. A review of the tasks reveals that 5-skill level airmen perform virtually the same technical tasks as do the 3-skill level members. However, a higher percentage of 3-skill level members perform these tasks. The 5-skill level members are primarily differentiated in that they perform some management or supervisory functions, although to a limited degree.

TABLE 10
 REPRESENTATIVE TASKS PERFORMED BY
 DAFSC 3E251 PERSONNEL
 (N=756)

SELECTED TASKS	PERCENT MEMBERS PERFORMING
F174 Perform operator inspections and maintenance on pavements and construction heavy equipment	85
M398 Haul materials using dump trucks	83
F175 Perform operator inspections and maintenance on pavements and construction equipment vehicles	82
L371 Haul materials using forklifts	80
F145 Break asphalt or concrete using jackhammers	79
L362 Attach or remove forklift attachments on front-end loaders	79
G205 Finish concrete by hand	79
F173 Perform operator inspections and maintenance on pavements and construction equipment attachments	79
L377 Load materials using front-end loaders with buckets	78
M397 Dump materials from dump trucks with tailgate up	78
L387 Stockpile materials using front-end loaders	78
L375 Level areas by backdragging using front-end loaders	78
L378 Load or off-load materials or equipment using forklifts	77
L363 Attach or remove multipurpose buckets on front-end loaders	76
L386 Spread materials using front-end loaders	76
G206 Finish concrete using brooms	76
M399 Spread materials from dump trucks	75
L364 Backfill excavations using front-end loaders	75
L376 Level materials using front-end loaders with multipurpose buckets	74
F156 Compact base course materials or subgrade using small powered equipment or hand tampers	74
L372 Haul materials using front-end loaders with forklift attachments	74
G218 Level concrete using hand screeds	74
G203 Edge concrete	73
G209 Finish concrete using bullfloats	73
F177 Place base course for materials	73
M400 Tow trailers or equipment using dump trucks	73
L373 Haul materials using front-end loaders with multipurpose buckets	73
L382 Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	72
G202 Drive stakes	72

Average number of tasks performed = 165

TABLE 11

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 3E231 AND DAFSC 3E251 PERSONNEL
(PERCENT MEMBERS PERFORMING)

SELECTED TASKS	3E231 (N=544)	3E251 (N=756)	DIFFERENCE
F164 Install or remove signs	78	54	24
M390 Apply nonstick coating to dump truck beds for hauling asphalt	73	53	20
F169 Maintain signs	64	45	19
F153 Compact base course materials or subgrade using pactors	65	47	18
F144 Break asphalt or concrete using handtools, other than jackhammers	85	69	16
K335 Construct chain-link fences	71	55	16
K334 Construct barbed-wire fences	48	32	16
K349 Maintain barbed-wire fences	50	35	15
F146 Clean asphalt or concrete cracks using compressed air	68	53	15
F156 Compact base course materials or subgrade using small powered equipment or hand tampers	88	74	14
<hr/>			
C90 Write EPRs	3	48	-45
C65 Conduct performance feedback worksheet (PFW) evaluation sessions	4	42	-38
B59 Supervise Pavements and Construction Equipment Apprentices (AFSC 3E231)	12	49	-37
B30 Counsel subordinates on personal or military-related problems	7	43	-36
D97 Conduct OJT	16	50	-34
D100 Counsel trainees on training progress	4	35	-31
B60 Supervise Pavements and Construction Equipment Journeymen (AFSC 3E251)	6	36	-30
C74 Evaluate personnel for compliance with performance standards	4	31	-27
D111 Maintain training records, charts, or graphs	3	29	-26
D109 Evaluate progress of trainees	3	27	-24

Representative TMs for this 5-skill level group include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	3	76
0002	level, backfill, or stockpile with front-end loaders	10	6	76
0003	load or haul with forklifts and front-end loaders	4	2	76
0070	inspect or maintain equipment	3	3	82
0085	repair pavements	3	2	73

These TMs indicate the scope of 5-skill level members' activities and provide emphasis and direction for training or as a minimum a starting point for upgrade training to journeyman; with an emphasis on pavements and construction activities (same TMs as for the 3-skill level group).

DAFSC 3E271. The 256 NCOs in this 7-skill level group constitute 16 percent of the survey sample and perform an average of 134 tasks. Forty-five percent of these 7-skill level members are in the Pavements Maintenance and Construction Cluster, with an additional 47 percent of these members in the Supervisory and Management Cluster (see Table 7). Fifty-three percent of their relative job time is spent on the usual supervisory, management, and training duties (see Table 8). The display of tasks in Table 12 clearly shows supervisory responsibilities and also reflects the range and scope of the job. Table 13 displays those tasks that differentiate between the 5- and 7-skill level groups and also reflects the supervisory responsibilities incumbent to the 7-skill level population. Tasks performed by higher percentages of 5-skill level personnel are technical and operational in nature, whereas higher percentages of 7-skill level personnel perform the higher level supervisory and management functions.

TABLE 12
 REPRESENTATIVE TASKS PERFORMED BY
 DAFSC 3E271 PERSONNEL
 (N=256)

SELECTED TASKS	PERCENT MEMBERS PERFORMING
C90 Write EPRs	79
B30 Counsel subordinates on personal or military-related problems	76
A3 Coordinate work activities with other civil engineering shops	73
C65 Conduct performance feedback worksheet (PFW) evaluation sessions	70
B28 Conduct or participate in staff meetings	70
A6 Determine work priorities	68
A15 Plan or schedule work assignments or requirements	68
B60 Supervise Pavements and Construction Equipment Journeymen (AFSC 3E251)	66
B29 Conduct supervisory orientations of newly assigned personnel	65
C74 Evaluate personnel for compliance with performance standards	64
A5 Determine requirements for space, personnel, equipment, or supplies	61
B59 Supervise Pavements and Construction Equipment Apprentices (AFSC 3E231)	60
B56 Resolve technical problems for subordinates	59
A25 Schedule leaves, passes, or TDYs	58
A9 Develop work methods or procedures	55
D97 Conduct OJT	55
B53 Initiate actions required to correct substandard performance of subordinates	55
A1 Assign personnel to duty positions	55
A2 Assign sponsors for newly assigned personnel	54
A14 Plan or prepare briefings	53
B55 Interpret policies, directives, or procedures for subordinates	52
C75 Evaluate personnel for promotion, demotion, reclassification, or special awards	52
B41 Direct maintenance or utilization of equipment	52
F174 Perform operator inspections and maintenance on pavements and construction heavy equipment	51
A4 Coordinate work progress with base civil engineering scheduling	50
F175 Perform operator inspections and maintenance on pavements and construction equipment vehicles	50

Average number of tasks performed = 134

TABLE 13

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 3E251 AND DAFSC 3E271 PERSONNEL
(PERCENT MEMBERS PERFORMING)

SELECTED TASKS	3E251 (N=756)	3E271 (N=256)	DIFFERENCE
G206 Finish concrete using brooms	76	37	39
G205 Finish concrete by hand	79	40	39
F157 Compact base course materials or subgrade using steel-wheeled rollers	71	33	38
M398 Haul materials using dump trucks	83	44	39
F145 Break asphalt or concrete using jackhammers	79	41	38
F156 Compact base course materials or subgrade using small powered equipment or hand tampers	74	37	37
M397 Dump materials from dump trucks with tailgate up	78	42	36
F144 Break asphalt or concrete using handtools, other than jackhammers	69	32	37
G203 Edge concrete	74	37	37
<hr/>			
B28 Conduct or participate in staff meetings	21	70	-49
A15 Plan or schedule work assignments or requirements	21	67	-46
A25 Schedule leaves, passes, or TDY's	13	58	-45
A6 Determine work priorities	26	68	-42
B29 Conduct supervisory orientations of newly assigned personnel	23	65	-42
A2 Assign sponsors for newly assigned personnel	15	54	-39
A5 Determine requirements for space, personnel, equipment, or supplies	24	61	-37
B61 Supervise Pavements and Construction Equipment Craftsmen (AFSC 3E271)	6	43	-37
A4 Coordinate work progress with base civil engineering scheduling	13	50	-37
A3 Coordinate work activities with other civil engineering shops	37	73	-36
A14 Plan or prepare briefings	19	53	-34
B56 Resolve technical problems for subordinates	25	59	-34

Representative TMs for this 7-skill level group include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0052	perform management and supervisory activities	6	6	68
0053	organize or plan work activities	5	6	63
0054	evaluate or implement performance standards	5	4	57

These TMs indicate the scope of 7-skill members' activities and provide emphasis and direction for training or as a minimum a starting point for upgrade training to craftsman, with an emphasis on both general and specific supervisory and management activities, as they apply to pavement and construction activities.

DAFSC 3E291/CEMs. The 23 senior NCOs in this 9-skill level/CEM group constitute 1 percent of the survey sample and perform an average of 78 tasks. Eighty-six percent of these 9-skill level/CEM members are in the Supervisory and Management Cluster (see Table 7). Table 8 shows that 85 percent of their relative job time is spent in the supervisory, management, and training duties (i.e., Duties A, B, C, and D). An additional 7 percent of their relative job time is spent on administrative functions. Table 14 clearly shows the breadth of supervisory and management functions 9-skill level and CEM members perform. It also reflects that these senior NCOs perform limited technical AFSC-specific tasks, accounting for only 8 percent of their relative job time. Table 15 displays those tasks that clearly show the differences between the 7- and 9-skill level/CEM groups. It also clearly reflects the upper-level management responsibilities incumbent to the 9-skill levels/CEMs.

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY
DAFSC 3E291/3E000 PERSONNEL
(N=23)

SELECTED TASKS		PERCENT MEMBERS PERFORMING
A9	Develop work methods or procedures	91
B28	Conduct or participate in staff meetings	87
A3	Coordinate work activities with other civil engineering shops	87
C90	Write EPRs	87
A10	Draft budget requirements	87
A6	Determine work priorities	87
A14	Plan or prepare briefings	87
A27	Write job or position descriptions	87
B30	Counsel subordinates on personal or military-related problems	83
A11	Establish organizational policies, such as office instructions (OIs) or standard operating procedures (SOPs)	83
C74	Evaluate personnel for compliance with performance standards	83
C69	Evaluate job or position descriptions	83
A15	Plan or schedule work assignments or requirements	78
A5	Determine requirements for space, personnel, equipment, or supplies	78
C84	Indorse enlisted performance reports (EPRs)	78
C75	Evaluate personnel for promotion, demotion, reclassification, or special awards	78
A25	Schedule leaves, passes, or TDYs	78
C63	Analyze work load requirements	78
C67	Evaluate budget requirements	78
B61	Supervise Pavements and Construction Equipment Craftsmen (AFSC 3E271)	74
A4	Coordinate work progress with base civil engineering scheduling	74
A12	Establish performance standards	74
B55	Interpret policies, directives, or procedures for subordinates	74
B29	Conduct supervisory orientations of newly assigned personnel	74
B53	Initiate actions required to correct substandard performance of subordinates	74
C65	Conduct performance feedback worksheet (PFW) evaluation sessions	74
A18	Plan special projects	70
C88	Select individuals for specialized training	70
B56	Resolve technical problems for subordinates	70

Average number of tasks performed = 78

TABLE 15

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 3E271 AND
DAFSC 3E291/3E000 PERSONNEL
(PERCENT MEMBERS PERFORMING)

SELECTED TASKS	3E271 (N=256)	3E291/3E000 (N=23)	DIFFERENCE
F174 Perform operator inspections and maintenance on pavements and construction heavy equipment	51	9	42
F175 Perform operator inspections and maintenance on pavements and construction equipment vehicles	50	9	41
F173 Perform operator inspections and maintenance on pavements and construction equipment attachments	49	9	40
L362 Attach or remove forklift attachments on front-end loaders	44	4	40
L372 Haul materials using front-end loaders with forklift attachments	44	4	40
L363 Attach or remove multipurpose buckets on front-end loaders	43	4	39
M400 Tow trailers or equipment using dump trucks	41	4	37
<hr/>			
A10 Draft budget requirements	32	87	-55
C67 Evaluate budget requirements	27	78	-55
A27 Write job or position descriptions	38	87	-49
C69 Evaluate job or position descriptions	34	83	-49
A11 Establish organizational policies, such as office instructions (OIs) or standard operating procedures (SOPs)	42	83	-41
C84 Indorse enlisted performance reports (EPRs)	41	78	-37
C63 Analyze work load requirements	41	78	-37
C83 Indorse civilian performance ratings or supervisory appraisals	28	65	-37
C88 Select individuals for specialized training	33	70	-37

Representative TMs for this 9-skill level/CEM group include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0052	perform management and supervisory activities	6	6	57
0053	organize or plan work activities	5	8	81
0054	evaluate or implement performance standards	5	6	76
0055	organize or plan management activities	6	8	71
0056	supervise civilians	4	4	58
0058	evaluate administrative policies and procedures	13	8	50

These TMs indicate the emphasis of 9-skill/CEMs is on performance of supervisory and upper-level management responsibilities.

Summary

Three- and 5-skill level airmen perform many tasks in common, and both groups spend the vast majority of their relative job time on technical AFSC-specific pavement and construction tasks and on operating equipment. The 5-skill level group, while performing similar technical tasks, perform some supervisory and management tasks. At the 7-skill level, members still perform a substantial amount of routine day-to-day technical pavements and construction activities, but demonstrate a shift toward supervisory functions. The 9-skill level/CEM group reflects supervisory and management responsibilities.

ANALYSIS OF AFMAN 36-2108 *SPECIALTY DESCRIPTIONS*

Survey data were compared to the AFMAN 36-2108 *Specialty Descriptions* for Pavement and Construction Equipment Apprentice, Pavement and Construction Equipment Journeymen, Pavement and Construction Equipment Craftsman, and Pavement and Construction Equipment Superintendent, all dated 30 April 1995.

The 3-/5-skill level specialty description appears complete and accurately portrays the range and technical nature of the job. The description for the Pavements and Construction Equipment Craftsman (AFSC 3E271) accurately reflects both the supervisory and the previously discussed technical nature of job. The 9-skill level/CEM specialty description accurately reflects the dominance of supervisory and management activities performed by these members.

ANALYSIS OF MAJCOMs

Tasks and background data for personnel of the nine MAJCOMs with the largest AFSC 3E2X1 populations were compared to determine whether job content varied as a function of command assignment.

Generally, the jobs performed across the commands were similar, with many tasks performed in common. The largest percentage of relative job time in each command is committed to tasks covering the performance of general pavements and construction and maintenance duties and the driving or operating of pavements and construction vehicles (see Table 16). The most notable differences in percentage of relative time spent can be seen in AFSOC; more of their relative job time is spent performing general pavements and construction equipment activities, and constructing and maintaining rigid pavements and concrete structures (22 and 17 percent, respectively) than for any of the other 8 MAJCOMs.

TRAINING ANALYSIS

One of the many sources of information that can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment is the OSR. Factors which may be used in evaluating training include the overall description of the job being performed by first-enlistment personnel, and their overall distribution across career ladder jobs, percentages of first-job (1-24 months TAFMS) or first-enlistment (1-48 months TAFMS) members performing specific tasks or using certain equipment or tools, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

To assist specifically in evaluation of the STS, SMEs TDY to AFOMS matched JI tasks to appropriate sections and subsections of the Pavements and Construction Equipment Operator STS. It was this matching upon which comparison to those documents was based. A complete computer listing displaying the percent members performing tasks, TE and TD ratings for each task, along with the STS matchings, has been forwarded to the technical school for their use in further detailed reviews of appropriate training documents. A summary of this information is presented below.

TABLE 16

PERCENTAGE OF TIME SPENT ON DUTIES BY MAJCOM GROUPS

DUTIES	ACC (N=476)	AFMC (N=219)	PACAF (N=212)	AETC (N=196)	AMC (N=164)
A. ORGANIZING AND PLANNING	5	4	5	5	5
B. DIRECTING AND IMPLEMENTING	6	6	5	6	5
C. INSPECTING AND EVALUATING	4	3	3	4	4
D. TRAINING	3	2	2	5	3
E. PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	3	3	2	4	4
F. PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	13	15	13	13	13
G. CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	13	14	13	14	12
H. CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	3	4	3	4	4
I. CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3	4	3	3	3
J. CONSTRUCTING BUNKERS AND REVETMENTS	*	*	2	*	*
K. PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	3	3	2	3	3
L. OPERATING FRONT-END LOADERS OR FORKLIFTS	11	10	11	11	11
M. OPERATING DUMP TRUCKS	4	5	4	5	4
N. OPERATING BACKHOES AND INDUSTRIAL TRACTORS AND ATTACHMENTS	4	5	4	6	6
O. OPERATING GRADERS AND ATTACHMENTS	3	3	4	3	2
P. OPERATING DOZERS AND ATTACHMENTS	3	3	4	2	2
Q. OPERATING SCRAPERS	*	1	*	*	*
R. OPERATING CRANES AND ATTACHMENTS	2	1	2	1	1
S. OPERATING MISCELLANEOUS EQUIPMENT	8	7	9	8	8
T. PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	3	3	6	1	6
U. RIGGING OR HOISTING EQUIPMENT	1	1	1	1	1
V. PERFORMING RANGE SUPPORT ACTIVITIES	*	*	*	*	*
W. PERFORMING SPECIALIZED ACTIVITIES	1	*	*	*	*
X. PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	4	2	2	2	3

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 16 (CONTINUED)

PERCENTAGE OF TIME SPENT ON DUTIES BY MAJCOM GROUPS

DUTIES	AFSPACECOM (N=135)	USAFE (N=119)	AFSOC (N=21)	USAF (N=14)
A. ORGANIZING AND PLANNING	4	4	6	2
B. DIRECTING AND IMPLEMENTING	5	6	9	3
C. INSPECTING AND EVALUATING	3	4	4	2
D. TRAINING	2	3	2	2
E. PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	2	3	2	3
F. PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	15	12	22	15
G. CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	14	10	17	9
H. CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4	3	3	2
I. CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3	2	4	4
J. CONSTRUCTING BUNKERS AND REVETMENTS	*	*	*	*
K. PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	3	4	3	3
L. OPERATING FRONT-END LOADERS OR FORKLIFTS	9	13	10	10
M. OPERATING DUMP TRUCKS	5	4	5	6
N. OPERATING BACKHOES AND INDUSTRIAL TRACTORS AND ATTACHMENTS	5	4	3	7
O. OPERATING GRADERS AND ATTACHMENTS	3	2	2	3
P. OPERATING DOZERS AND ATTACHMENTS	3	2	1	4
Q. OPERATING SCRAPERS	1	*	-	-
R. OPERATING CRANES AND ATTACHMENTS	1	2	1	1
S. OPERATING MISCELLANEOUS EQUIPMENT	8	9	4	11
T. PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	5	4	-	9
U. RIGGING OR HOISTING EQUIPMENT	*	1	*	1
V. PERFORMING RANGE SUPPORT ACTIVITIES	*	*	-	*
W. PERFORMING SPECIALIZED ACTIVITIES	*	1	*	*
X.. PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	1	5	1	1

- Indicates no members or nonresponse

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

First-Enlistment Personnel

In this study, there are 606 members in their first enlistment (1-48 months TAFMS), representing over 38 percent of the total survey sample. The job performed by these personnel is highly technical in nature, accounting for approximately 97 percent of their relative duty time (see Table 17). Distribution of these personnel across the career ladder jobs is displayed in Figure 2, which shows that the vast majority of first-enlistment airmen are included in the Pavements Maintenance and Construction Cluster. Table 18 displays some of the average 141 tasks performed by this group and reflects general pavements and construction activities, maintenance of pavements, concrete structures, and operating equipment activities.

Representative TMs for this first-enlistment group include:

TM	Module Title	No. of Tasks	Percent Time Spent Sum	Avg Pct Mbrs Perf
0001	dump or haul with dump trucks	5	5	86
0002	level, backfill, or stockpile with front-end loaders	10	8	81
0003	load or haul with forklift and front-end loaders	4	3	74
0070	inspect or maintain equipment	3	4	88
0085	repair pavements	3	3	85

These TMs indicate the scope of first-enlistment members' activities and provide emphasis and direction for training or at least a starting point for resident training. These TMs illustrate the wide variance in activities performed by these members.

One of the objectives of this survey project was to gather data for the Training Wing pertaining to the various types of vehicles, tools, or equipment used, operated, or maintained. Accordingly, Table 19 presents percentages of first-enlistment airmen responding to this question concerning their activities involving these items. Information was gathered on 143 different types of vehicles, tools, and equipment. Eighty-one different types of vehicles, tools, or equipment had responses of greater than 20 percent members performing. This table illustrates the large variety of equipment and tools required by a large percentage of these members to

TABLE 17

RELATIVE PERCENT OF TIME SPENT ACROSS DUTIES
BY FIRST-ENLISTMENT PERSONNEL

DUTIES	PERCENT TIME SPENT
A. ORGANIZING AND PLANNING	1
B. DIRECTING AND IMPLEMENTING	1
C. INSPECTING AND EVALUATING	*
D. TRAINING	*
E. PERFORMING ADMINISTRATIVE AND SUPPLY FUNCTIONS	1
F. PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	19
G. CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	17
H. CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4
I. CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3
J. CONSTRUCTING BUNKERS AND REVETMENTS	*
K. PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4
L. OPERATING FRONT-END LOADERS OR FORKLIFTS	14
M. OPERATING DUMP TRUCKS	7
N. OPERATING BACKHOES AND INDUSTRIAL TRACTORS AND ATTACHMENTS	6
O. OPERATING GRADERS AND ATTACHMENTS	3
P. OPERATING DOZERS AND ATTACHMENTS	3
Q. OPERATING SCRAPERS	*
R. OPERATING CRANES AND ATTACHMENTS	*
S. OPERATING MISCELLANEOUS EQUIPMENT	9
T. PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	4
U. RIGGING OR HOISTING EQUIPMENT	*
V. PERFORMING RANGE SUPPORT ACTIVITIES	*
W. PERFORMING SPECIALIZED ACTIVITIES	*
X. PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2

* - Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

Pavements and Construction Equipment Operator First-Enlistment Jobs

(N=606)

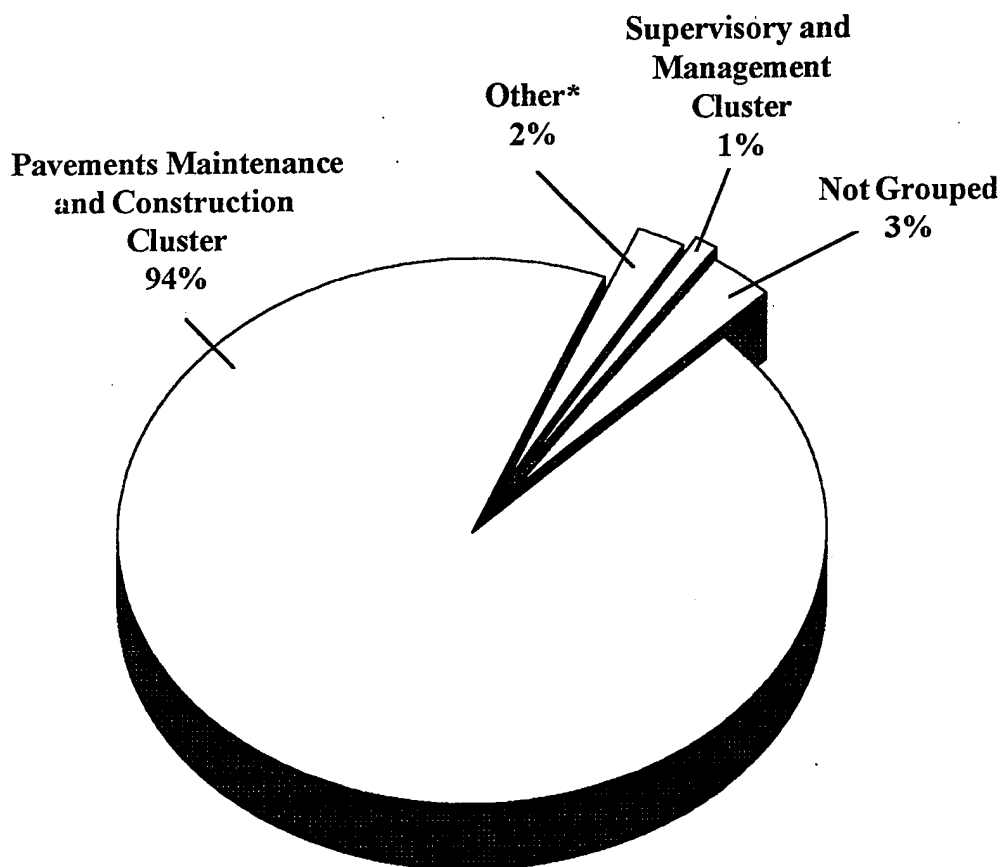


Figure 2

* Other

Snow Removal Job

Dozer/Scraper Operator Job

Grounds Maintenance Job

Mobility/Contingency Equipment Operator Job

TABLE 18

REPRESENTATIVE TASKS PERFORMED BY
FIRST-ENLISTMENT PERSONNEL

SELECTED TASKS		PERCENT MEMBERS PERFORMING (N=606)
F145	Break asphalt or concrete using jackhammers	92
M398	Haul materials using dump trucks	91
F174	Perform operator inspections and maintenance on pavements and construction heavy equipment	90
L387	Stockpile materials using front-end loaders	88
F156	Compact base course materials or subgrade using small powered equipment or hand tampers	88
G205	Finish concrete by hand	87
M399	Spread materials from dump trucks	87
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	87
M397	Dump materials from dump trucks using tailgate up	86
L375	Level areas by backdragging using front-end loaders	86
G218	Level concrete using hand screeds	85
F144	Break asphalt or concrete using handtools, other than jackhammers	85
M400	Tow trailers or equipment using dump trucks	84
F173	Perform operator inspections and maintenance on pavements and construction equipment attachments	83
L377	Load materials using front-end loaders with buckets	83
L386	Spread materials using front-end loaders	83
G206	Finish concrete using brooms	82
G199	Cut concrete	82
L364	Backfill excavations using front-end loaders	82
G209	Finish concrete using bullfloats	81
M396	Dump materials from dump trucks with tailgate down	81
G202	Drive stakes	81
L382	Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	80
L362	Attach or remove forklift attachments on front-end loaders	80

Average number or tasks performed = 141

TABLE 19

VEHICLES, TOOLS, OR EQUIPMENT ITEMS USED, OPERATED, OR MAINTAINED BY 50
PERCENT OR MORE OF FIRST-JOB OR FIRST-ENLISTMENT PERSONNEL

VEHICLES, TOOLS, OR EQUIPMENT	PERCENT MEMBERS PERFORMING	
	1ST JOB (N=308)	1ST ENL (N=606)
Front-end loaders, wheel-mounted	97	97
Backhoes	95	96
Jackhammers	94	94
Air compressors	93	95
Bullfloats	90	91
Forklift	88	90
Saws, concrete	88	91
Dozers, track-mounted	85	89
Rollers, steel-wheeled	82	86
Tampers, vibrator	81	81
Asphalt lutes	79	82
Screed beams	77	74
Graders, articulated	76	83
Screeds, hand	74	75
Excavators	68	74
Portable concrete mixers	68	69
Drills, electric	66	72
Sweepers, multipurpose	66	72
Steel concrete forms	65	71
Rollers, vibratory	65	69
Tractors, industrial	62	69
Trucks, dump, not M-series	62	67
Tampers, pneumatic	61	55
Asphalt paving machines	60	64
Jitter bugs	59	61
Portable generators	58	64
Construction site safety devices	56	57
Drills, pneumatic	56	57
Earth augers	55	65
Rollers, vibrator	55	58
Edgers	54	61

perform their job. This type of information is useful for both technical school and MAJCOM training personnel to assist them in focusing limited training time or other resources on the most utilized items.

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank ordering of those tasks in the JI considered important for first-enlistment training (TE) (see Table 20 for the top-rated tasks), along with a measure of the difficulty (TD) of the JI tasks (see the highest rated tasks presented in Table 21). A total of 141 tasks were rated high in TE, having a rating of over 4.61, with 100 percent of these tasks matched to the STS. Tasks rated highest in TE are technical tasks which include: performing operator inspections and maintenance on pavements and construction vehicles, heavy equipment and attachments; and operating heavy equipment necessary for constructing or maintaining flexible and rigid pavements and concrete structures. Although these tasks are rated high in TE and viewed as necessary for training of first-enlistment personnel, these tasks are for the most part not viewed as difficult to learn. Tasks rated high in TD involve supervisory and management activities, construction finishing procedures, and operating heavy equipment. Technical tasks receiving highest TD ratings involve: directing pavements and construction operations, finishing activities for structures and pavements, and operating cranes and attachments. When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, the AFOMS developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. These indicators correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 1, AETCR 52-22, and allow course personnel to quickly focus their attention on those tasks most likely to qualify for ABR course consideration.

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by technical school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 20

TECHNICAL TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)
BY AFSC 3E2X1 PERSONNEL

SELECTED TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING			TASK DIFF**
		1ST JOB (N=308)	1ST ENL (N=606)		
F174 Perform operator inspections and maintenance on pavements and construction heavy equipment	6.75	88	90		4.24
G205 Finish concrete by hand	6.59	83	87		5.32
N419 Excavate trenches using backhoes	6.51	47	57		5.18
G209 Finish concrete using bullfloats	6.49	79	81		4.74
F175 Perform operator inspections and maintenance on pavements and construction equipment vehicles	6.47	86	87		4.15
F173 Perform operator inspections and maintenance on pavements and construction equipment attachments	6.45	82	85		4.23
N421 Expose underground utilities using backhoes or tractors with backhoe attachments	6.43	38	51		6.55
G206 Finish concrete using brooms	6.27	80	82		4.16
L382 Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	6.24	79	80		5.28
H250 Compact asphalt using steel-wheeled rollers	6.20	71	75		4.78
L363 Attach or remove multipurpose buckets on front-end loaders	6.20	70	76		3.68

* TE MEAN = 3.02; S.D. = 1.59 (High TE >= 4.61)

** TD MEAN = 5.00; S.D. = 1.00

TABLE 21

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD) BY AFSC 3E2X1 PERSONNEL

SELECTED TASKS	TASK DIFF*	PERCENT MEMBERS PERFORMING					TNG EMP**
		1ST JOB (N=308)	1ST ENL (N=606)	DAFSC 3E251	DAFSC 3E271		
O448	7.98	21	31	43	28	5.00	
C91	7.96	1	2	6	23	.57	
G225	7.81	2	4	4	3	1.80	
B32	7.70	4	4	5	8	.78	
A10	7.62	5	5	11	30	.51	
B33	7.58	4	5	12	19	.78	
R551	7.47	1	1	6	6	2.57	
O449	7.45	2	5	10	5	2.29	
R522	7.45	0	1	2	3	2.14	
W736	7.39	0	0	3	2	1.00	
B48	7.35	2	2	4	5	.33	
F176	7.35	7	8	7	5	1.65	
R562	7.26	0	0	1	1	1.82	
H265	7.16	2	2	2	2	1.31	
P488	7.16	3	3	3	3	2.63	
H259	7.11	16	23	37	21	4.63	
R518	7.10	1	1	2	2	2.94	
R539	7.08	0	1	2	2	2.53	

* TD MEAN = 5.00 S.D. = 1.00

** TE MEAN = 3.02; S.D. = 1.59 (High TE >= 4.61)

Specialty Training Standard (STS)

A comprehensive review of STS 3E2X1, dated 29 August 1995, compared STS items to survey data. STS paragraphs containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge, performance elements, and dashed/"-" entries of the STS were compared against the standard set forth in AETCR 52-22, paragraph 3B, (i.e., include tasks performed or knowledge required by 20 percent or more of the personnel in a skill level (criterion group) of the AFS).

Using this criterion, STS 3E2X1 was found to be supported by occupational survey data. Overall the STS captures the work performed by this career ladder as identified by the career ladder structure analysis of this AFSC. Even though some elements did not have high percentages of personnel performing matched tasks, the fact that the supporting tasks were part of an identifiable job being performed in the career ladder supports the retention of the STS element involving those tasks.

Some elements of the STS 3E2X1 were not supported by occupational data and do require review by training personnel and SMEs. Table 22 displays examples of these elements and survey data pertaining to tasks matched to these elements. Data covering the STS line items dealing with activities such as: ditching with a crawler tractor; removing snow with snowblowers; rigging and lifting with wire rope; and performing oxyacetylene welding, were not supported by 20 percent or more respondents. A complete listing of STS paragraphs not supported by occupational data can be found in the Training Extract. These tasks reflect low task performance figures which necessitate evaluation to justify retention in the STS.

Tasks not matched to any entry of the STS, accounting for 24 percent (N=189) of total tasks not matched, are listed at the end of the STS computer listing. These were reviewed extensively to determine if there were any tasks concentrated around any particular functions or jobs. Duty V - Range Support Activities, did not have any of the 18 tasks in the duty matched to any STS paragraph - it should be noted that this duty had very low percentages of percent members performing. Examples of technical tasks performed by 20 percent or more respondents of the STS target groups, but which were not referenced to any STS element, are displayed in Table 23. Training personnel and SMEs should review these and other eligible unreferenced tasks to determine if inclusion in the STS is justified.

TABLE 22

EXAMPLES OF STS ELEMENTS NOT SUPPORTED BY SURVEY DATA
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ITEMS (with selected matched tasks)	3 LVL COURSE PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING				TASK DIFF**
			1ST ENL (N=606)	DAFSC 3C251 (N=379)	DAFSC 3C271 (N=278)		
15.08.03. Ditch	2b/b						
P480 Cut flat-bottom ditches using dozers		3.16	10	11	7	5.49	
P483 Cut V-ditches using dozers		3.75	11	15	9	6.01	
17.03. Perform Operator Maintenance	2b						
S567 Add or remove ballast in rollers		2.96	9	12	9	3.66	
22.02.01. Snow Blowers	b						
T644 Remove snow or ice using snowblowers		4.12	15	16	10	4.90	
T646 Remove snow using bank-rotary snowblowers		4.41	5	8	4	5.31	
23.01.03. Fiber Rope	a						
R546 Prepare loads for lifting by fiber ropes		4.41	5	14	8	5.95	
27.01.02.05. Apply Welding Fundamentals	1a						
W735 Weld materials using oxyacetylene welding		2.65	10	10	10	6.63	

* TE MEAN = 3.02; S.D. = 1.59 (High TE >= 4.61)

** TD MEAN = 5.00; S.D. = 1.00

TABLE 23

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
AND NOT REFERENCED TO THE 3E2X1 STS

SELECTED TASKS	PERCENT MEMBERS PERFORMING					TASK DIFF**
	1ST	DAFSC	DAFSC	TNG	EMP*	
	ENL	3C251	3C271			
	(N=606)	(N=379)	(N=278)			
F152	59	47	20	3.98	3.41	
F161	76	65	35	3.71	2.97	
F164	75	48	29	3.80	3.15	
F168	78	64	36	4.47	2.31	
F169	61	41	24	3.67	2.57	
I302	50	46	25	3.20	3.54	
M390	71	47	23	4.55	2.15	
F178	23	24	19	3.02	4.44	
K359	37	32	21	2.14	3.38	
A3	15	49	72	1.78	4.77	
A5	10	32	63	.73	5.24	
A6	12	36	68	1.06	5.42	
B35	13	46	48	1.82	5.23	
A8	7	15	37	.69	6.19	

* TE MEAN = 3.02; S.D. = 1.59 (High TE >= 4.61)

** TD MEAN = 5.00; S.D. = 1.00

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors that may effect the job performance of airmen in the career ladder. Questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey booklet to provide indications of job satisfaction.

Table 24 presents job satisfaction data for AFSC 3E2X1 TAFMS groups, together with data for a comparative sample of Direct Support career ladders surveyed in 1994. These data can give a relative measure of how the job satisfaction of AFSC 3E2X1 personnel compares with other similar Air Force specialties. Review of Table 24 reflects that responses from AFSC 3E2X1 TAFMS groups regarding job interest, use of talents, use of training, and sense of accomplishment gained from work are all positive (72 percent or more). For one group (1-48 months TAFMS) in the current study, lower positive responses were noted in reenlistment intentions than for the comparative sample.

An indication of how job satisfaction perceptions have changed over time is provided in Tables 25 and 26 where TAFMS group data for 1996 survey respondents are presented, along with data from respondents to the last occupational surveys involving this career ladder, published in 1991 (Table 25 - 1991 study for 551X0; Table 26 - 1991 study for 551X1). Comparison of job satisfaction indicator responses of current survey TAFMS groups to those in the 1991 survey indicate that current job satisfaction responses are generally higher than those in 1991 for both AFSC 551X0 and AFSC 551X1. The most notable exception is the somewhat lower positive responses concerning perceived utilization of talents by the current survey in the 1-48 months group for AFSC 551X1. Job satisfaction responses are significantly higher, in all survey TAFMS groups and for both AFSC 551X0 and AFSC 551X1, than those reported in the 1991 for job interest and reenlistment intentions.

Finally, Table 27 presents job satisfaction responses from personnel in the specialty jobs discussed in the **SPECIALTY JOBS** section of this report. An examination of these data can show how overall job satisfaction may be influenced by the type of job performed. Review of the job satisfaction data for the Pavements and Construction Equipment career ladder reveals generally positive responses in the five job satisfaction indicators.

A few jobs within this study revealed low ratings for some of the five job satisfaction indicators. Personnel in the Snow Removal job responded that only 5 percent would reenlist; note that 12 of the 19 respondents are civilians. Personnel in the Pavements Maintenance and Construction NCOIC job revealed less than 50 percent responding positively to sense of accomplishment gained from work and in reenlistment intentions. Grounds Maintenance personnel stated that they were less than satisfied in perceived use of training and in reenlistment intentions. Personnel in the Sweeper Operator Job revealed positive responses (though not high - 60 percent) in sense of accomplishment gained from work only; the remaining 4 job satisfaction indicators were less than 50 percent responding positively.

TABLE 24

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 3E2X1
TAFMS GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	3E2X1 (N=604)	COMP SAMPLE (N=2,278)	3E2X1 (N=329)	COMP SAMPLE (N=4,321)	3E2X1 (N=641)	COMP SAMPLE (N= 5,557)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	74	69	72	67	80	74
SO-SO	17	18	19	20	15	15
DULL	10	13	8	13	5	10
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	81	75	85	76	87	81
LITTLE OR NOT AT ALL	19	25	15	24	13	19
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	87	82	83	78	82	78
LITTLE OR NOT AT ALL	13	17	18	22	18	22
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	77	67	74	68	79	71
NEUTRAL	12	15	13	12	9	9
DISSATISFIED	12	17	13	19	12	19
<u>REENLISTMENT INTENTIONS:</u>						
YES OR PROBABLY YES	55	59	78	73	76	71
NO OR PROBABLY NO	45	40	21	27	10	10
WILL RETIRE	*	*	*	*	14	19

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

Comparative sample of DIRECT SUPPORT career ladders surveyed in 1994. (Includes AFSCs 1TXXX, 3VXXX, 1WXXX, 2RXXX, 2TXXX, 3EXXX, 2BXXX, 3K0X1, 2F0X1, 2S0XX, 3PXXX, and 7S0X1)

TABLE 25

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 3E2X1
TAFMS GROUPS IN CURRENT STUDY TO 1991 STUDY FOR 551X0
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	CURRENT	1991	CURRENT	1991	CURRENT	1991
<u>JOB SATISFACTION INFORMATION:</u>						
JOB FAIRLY INTERESTING OR BETTER	91	63	91	75	95	76
TALENT UTILIZED FAIRLY WELL OR BETTER	81	75	85	85	87	86
TRAINING UTILIZED FAIRLY WELL OR BETTER	87	81	83	77	82	80
FAVORABLY CONSIDERING REENLISTMENT	100	55	99	79	86	75

TABLE 26

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 3E2X1
TAFMS GROUPS IN CURRENT STUDY TO 1991 STUDY FOR 551X1
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	CURRENT	1991	CURRENT	1991	CURRENT	1991
<u>JOB SATISFACTION INFORMATION:</u>						
JOB FAIRLY INTERESTING OR BETTER	91	74	91	80	95	75
TALENT UTILIZED FAIRLY WELL OR BETTER	81	82	85	82	87	81
TRAINING UTILIZED FAIRLY WELL OR BETTER	87	78	83	82	82	78
FAVORABLY CONSIDERING REENLISTMENT	100	57	99	82	86	77

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 27

COMPARISON OF JOB SATISFACTION INDICATORS FOR MEMBERS OF SPECIALTY CLUSTERS AND JOBS
(PERCENT MEMBERS RESPONDING)

	PAVEMENTS MAINT AND CONSTRUCTION CLUSTER					
	PAVEMENTS MAINT AND CONSTRUCTION JOB	CONSTRUCTION EQUIPMENT OPERATOR JOB	PAVEMENTS MAINT AND CONSTRUCTION NCOIC JOB	SNOW REMOVAL JOB	DOZER/ SCRAPER OPERATOR JOB	GROUND MAINT JOB
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	76	91	63	79	67	67
SO-SO	16	9	0	21	0	8
DULL	7	0	38	0	33	25
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	86	96	50	73	84	63
LITTLE OR NOT AT ALL	14	4	50	26	17	38
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	87	95	50	68	83	42
LITTLE TO NOT AT ALL	13	4	50	32	17	58
<u>SENSE OF ACCOMPLISHMENT</u>						
<u>GAINED FROM WORK:</u>						
SATISFIED	78	96	38	74	50	63
NEUTRAL	10	0	25	11	17	17
DISSATISFIED	11	4	38	16	33	21
<u>REENLISTMENT INTENTIONS:</u>						
PLAN TO REENLIST	63	65	38	5	50	8
PLAN NOT TO REENLIST	25	17	13	21	33	4
PLAN TO RETIRE	3	4	25	11	0	0
CIVILIAN RESPONSE	9	13	25	63	17	88

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 27 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR MEMBERS OF SPECIALTY CLUSTERS AND JOBS
(PERCENT MEMBERS RESPONDING)

	SWEEPER OPERATOR JOB	TRAINING JOB	MOBILITY/ CONTINGENCY EQUIPMENT OPERATOR JOB	VEHICLE CONTROL JOB	SUPERVISORY AND MANAGEMENT CLUSTER	
					EXPEDIENT REPAIR AND CONSTRUCTION NCOIC JOB	SUPPLY CUSTODIAN JOB
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	40	100	80	91	86	60
SO-SO	40	0	0	9	14	40
DULL	20	0	20	0	0	0
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	40	80	80	73	100	100
LITTLE OR NOT AT ALL	60	20	20	27	0	0
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	40	80	80	72	71	100
LITTLE TO NOT AT ALL	60	20	20	27	29	0
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	60	80	80	82	86	60
NEUTRAL	40	0	20	9	14	40
DISSATISFIED	0	20	0	9	0	0
<u>REENLISTMENT INTENTIONS:</u>						
PLAN TO REENLIST	0	100	80	73	57	60
PLAN NOT TO REENLIST	0	0	20	9	29	20
PLAN TO RETIRE	20	0	0	9	14	20
CIVILIAN RESPONSE	80	0	0	9	0	0

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 27 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR MEMBERS OF SPECIALTY CLUSTERS AND JOBS
(PERCENT MEMBERS RESPONDING)

	SUPERVISORY AND MANAGEMENT CLUSTER			
	FIRST-LINE SUPERVISOR	READINESS MANAGER	SENIOR SUPERVISOR	
	JOB	JOB	JOB	JOB
EXPRESSED JOB INTEREST:				
INTERESTING	62	86		89
SO-SO	31	7		9
DULL	8	7		2
PERCEIVED USE OF TALENTS:				
FAIRLY WELL TO PERFECTLY	85	93		94
LITTLE OR NOT AT ALL	15	7		6
PERCEIVED USE OF TRAINING:				
FAIRLY WELL TO PERFECTLY	85	78		87
LITTLE TO NOT AT ALL	15	21		12
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:				
SATISFIED	69	79		85
NEUTRAL	0	14		7
DISSATISFIED	31	0		7
REENLISTMENT INTENTIONS:				
PLAN TO REENLIST	85	64		59
PLAN NOT TO REENLIST	15	7		10
PLAN TO RETIRE	0	29		18
CIVILIAN RESPONSE	0	0		13

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

When there are serious problems in a career ladder, survey respondents are usually quite free with write-in comments to complain about perceived problems in the field. Eighteen percent of the survey sample (N=323) used the write-in feature to convey some type of information. No major deficiencies were evident. Many respondents used the write-in comments to provide information about themselves and their jobs. Of the 323 write-in comments, 67 percent provided demographic information; the remaining 33 percent of the comments covered additional tools or equipment, additional forms used, general information, contingency teams assigned to, and additional tasks. No particular trends or areas of concern were evident.

IMPLICATIONS

This survey was requested by training personnel to review the structure of the career ladder and to obtain current task and equipment data.

In this survey six jobs were identified that did not exist in the previous OSR: the Pavements Maintenance and Construction NCOIC Job; Sweeper Operator Job; Mobility/Contingency Equipment Operator Job; Expedient Repair and Construction NCOIC Job; First-Line Supervisor Job; and Readiness Manager Job. The identification of the Pavements Maintenance and Construction NCOIC Job and the First-Line Supervisor Job may be more of a function of the design of the JI and responses from the field than a difference in actual career ladder activities. The identification of the remaining jobs in this survey illustrates the concern and emphasis on mobility/contingency requirements and the increasing state of readiness awareness. Survey data indicate personnel are performing jobs as defined in the current classification structure.

Survey results described in the **SPECIALTY JOBS** section clearly suggest that the Pavements and Construction Equipment career ladder has seen only minor changes in career structure since the previous survey in 1991. The basic premise of constructing and maintaining pavements and other surfaces or structures has remained constant. Personnel in the Pavements Maintenance and Construction Job make up the bulk of the career ladder and perform a job broader in scope than any other job identified in the career ladder.

Specialty descriptions for this career ladder accurately describe the work performed by members. Military members progress typically through the career ladder.

STS 3E2X1 is well supported by occupational survey data.

Members of the Pavements and Construction Equipment specialty appear fairly satisfied with their jobs, with job satisfaction indicators generally higher than those in the 1991 survey.

APPENDIX A

**SELECTED REPRESENTATIVE TASKS PERFORMED BY
MEMBERS OF CAREER LADDER JOBS**

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TABLE I

PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER (ST0044)

GROUP SIZE: 1,388

AVERAGE TICF: 72 MOS

PERCENT OF SAMPLE: 79%

AVERAGE TAFMS: 76 MOS (Military)

PREDOMINANT GRADE: E-4/5 (Military)

AVERAGE FED CIV SER: 200 MOS (Civilian)

WG-10 (Civilian)

AVERAGE NUMBER OF TASKS PERFORMED: 181

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
M398	Haul materials using dump trucks	93
F174	Perform operator inspections and maintenance on pavements and construction heavy equipment	93
L387	Stockpile materials using front-end loaders	91
F145	Break asphalt or concrete using jackhammers	91
M397	Dump materials from dump trucks with tailgate up	90
L375	Level areas by backdragging using front-end loaders	90
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	90
L377	Load materials using front-end loaders with buckets	89
G205	Finish concrete by hand	89
F173	Perform operator inspections and maintenance on pavements and construction equipment attachments	89
L386	Spread materials using front-end loaders	88
L364	Backfill excavations using front-end loaders	87
L362	Attach or remove forklift attachments on front-end loaders	87
F156	Compact base course materials or subgrade using small powered equipment or hand tampers	87
M400	Tow trailers or equipment using dump trucks	86
L371	Haul materials using forklifts	85
G218	Level concrete using hand screeds	85
G206	Finish concrete using brooms	85
L376	Level materials using front-end loaders with multipurpose buckets	84
L363	Attach or remove multipurpose buckets on front-end loaders	84
M396	Dump materials from dump trucks with tailgate down	83

TABLE IA

PAVEMENTS MAINTENANCE AND CONSTRUCTION JOB (ST0116)

GROUP SIZE: 1,297
 PERCENT OF SAMPLE: 74%
 PREDOMINANT GRADE: E-4 (Military)
 WG-10 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 188

AVERAGE TICF: 72 MOS

AVERAGE TAFMS: 75 MOS (Military)

AVERAGE FED CIV SER: 200 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
F174	Perform operator inspections and maintenance on pavements and construction heavy equipment	94
M398	Haul materials using dump trucks	94
F145	Break asphalt or concrete using jackhammers	94
L387	Stockpile materials using front-end loaders	93
G205	Finish concrete by hand	92
L375	Level areas by backdragging using front-end loaders	92
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	92
L377	Load materials using front-end loaders with buckets	91
M399	Spread materials from dump trucks	91
F173	Perform operator inspections and maintenance on pavements and construction equipment attachments	91
M397	Dump materials from dump trucks with tailgate up	91
L386	Spread materials using front-end loaders	90
F156	Compact base course materials or subgrade using small powered equipment or hand tampers	90
L364	Backfill excavations using front-end loaders	89
G218	Level concrete using hand screeds	89
G206	Finish concrete using brooms	88
G209	Finish concrete using bullfloats	87
L371	Haul materials using forklifts	87
G202	Drive stakes	86
G203	Edge concrete	85
G197	Construct concrete forms	84
G234	Place or remove concrete forms	83

TABLE IB

CONSTRUCTION EQUIPMENT OPERATOR JOB (ST0161)

GROUP SIZE: 23
 PERCENT OF SAMPLE: 1%
 PREDOMINANT GRADE: E-5 (Military)
 WG-08/10 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 122

AVERAGE TICF: 105 MOS
 AVERAGE TAFMS: 111 MOS (Military)
 AVERAGE FED CIV SER: 244 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
L364	Backfill excavations using front-end loaders	96
L362	Attach or remove forklift attachments on front-end loaders	96
L375	Level areas by backdragging using front-end loaders	96
L371	Haul materials using forklifts	96
M398	Haul materials using dump trucks	91
L377	Load materials using front-end loaders with buckets	91
O450	Level areas using graders	91
L363	Attach or remove multipurpose buckets on front-end loaders	91
L372	Haul materials using front-end loaders with forklift attachments	91
L385	Rough grade areas using front-end loaders	91
L378	Load or off-load materials or equipment using forklifts	91
M397	Dump materials from dump trucks with tailgate up	87
S604	Load or off-load construction equipment or materials on drop-gooseneck trailers	87
M399	Spread materials from dump trucks	87
L382	Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	87
O455	Remove or replace grader cutting edges or end-bits	87
O442	Cut and fill using graders	83
O459	Rough grade areas using graders	83
O437	Backfill using graders with turntable blades	83
S600	Haul construction equipment using drop-gooseneck trailers	83
O453	Maintain unpaved surfaces using graders	78
O462	Spread materials using graders with turntable blades	78
O465	Windrow materials using graders	78

TABLE IC

PAVEMENTS MAINTENANCE AND CONSTRUCTION NCOIC JOB (ST0083)

GROUP SIZE: 8
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-5/6 (Military)
 WG-10/WS-7 (Civilian)
 AVERAGE TICEF: 163 MOS
 AVERAGE TAFMS: 173 MOS (Military)
 AVERAGE FED CIV SER: 214 MOS (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 86

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
A3	Coordinate work activities with other civil engineering shops	100
K356	Perform shop maintenance on mowers	88
S595	Fill water distributors	88
M396	Dump materials from dump trucks with tailgate down	88
M397	Dump materials from dump trucks with tailgate up	88
M399	Spread materials from dump trucks	88
K339	Cut grass using riding lawn mowers	75
B58	Supervise civilian personnel	75
B37	Direct grounds maintenance operations	75
F168	Maintain handtools	75
E119	Annotate civilian time cards or forms	75
K340	Cut grass using towed mowers	75
N402	Attach or remove tractor attachments	75
E141	Turn in equipment, tools, or supplies	75
F152	Clear trees, vegetation, shrubs, or debris from areas using handtools	75
A20	Prepare grass cutting plans	75
M398	Haul materials using dump trucks	75
S596	Hand spray water from water distributors	75
F151	Clear trees, vegetation, shrubs, or debris from areas using construction equipment	75
S587	Load or off-load skid-steer loaders on trailers	75
K357	Remove sod using sod cutters	75
S588	Spread materials using skid-steer loaders	75
M400	Tow trailers or equipment using dump trucks	75
A6	Determine work priorities	63

TABLE II

SNOW REMOVAL JOB (ST0075)

GROUP SIZE: 19
 PERCENT OF SAMPLE: 1%
 PREDOMINANT GRADE: E-5 (Military)
 WG-08 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 60

AVERAGE TICF: 104 MOS
 AVERAGE TAFMS: 109 MOS (Military)
 AVERAGE FED CIV SER: 68 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
T623	Clean snow from snow removal equipment	100
T629	Install or remove plow blade cutting edges	95
T645	Remove snow using air blast snow sweepers	89
T657	Remove snow using rollover snowplows	84
T624	Clear snow or ice from runway lights	84
T641	Remove snow or ice using front-end loaders	79
T649	Remove snow using dump trucks with snowplow attachments	79
T630	Install or remove shoes or castor wheels	79
T628	Haul snow	74
T648	Remove snow using dump trucks with front-mounted brooms	74
T668	Stockpile snow using front-end loaders	74
T639	Remove or replace air blast snow sweeper cores	63
T665	Spread chemicals or abrasives over ice using spreaders	63
M398	Haul materials using dump trucks	63
L363	Attach or remove multipurpose buckets on front-end loaders	63
M400	Tow trailers or equipment using dump trucks	58
T642	Remove snow or ice using graders without wing-plow attachments	58
T633	Load snow into trucks using front-end loaders	58
L362	Attach or remove forklift attachments on front-end loaders	58
L377	Load materials using front-end loaders with buckets	58
L373	Haul materials using front-end loaders with multipurpose buckets	58
L387	Stockpile materials using front-end loaders	58
T620	Attach or remove snowplows on dump trucks	53

TABLE III

DOZER/SCRAPER OPERATOR JOB (ST0154)

GROUP SIZE: 6
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-4 (Military)
 WG-08 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 84

AVERAGE TICF: 49 MOS

AVERAGE TAFMS: 50 MOS (Military)

AVERAGE FED CIV SER: 252 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
P493	Maintain sanitary fills using dozers	100
P482	Cut sanitary fills using dozers	100
Q515	Spread scraper loads	100
Q512	Haul materials using scrapers	100
Q509	Cut sanitary fills using scrapers	100
P485	Downhill cut using dozers	100
P489	Level areas using dozers	100
P472	Backdrag using dozers	100
P490	Load or off-load dozers on trailers	100
Q510	Dump materials using scrapers	83
M398	Haul materials using dump trucks	83
M397	Dump materials from dump trucks with tailgate up	83
P503	Stockpile materials using dozers	83
L377	Load materials using front-end loaders with buckets	83
L386	Spread materials using front-end loaders	83
P487	Excavate surface areas using dozers	83
L375	Level areas by backdragging using front-end loaders	83
P466	Adjust angle, pitch, or tilt of dozer blades	83
L382	Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets	67
Q511	Excavate areas using scrapers	67
Q508	Cut or fill to grade using scrapers	67
P492	Loosen materials using dozers with ripper attachments	67
L376	Level materials using front-end loaders with multipurpose buckets	67
P501	Slope embankments using dozers	67

TABLE IV

GROUNDS MAINTENANCE JOB (ST0078)

GROUP SIZE: 24	AVERAGE TICF: 41 MOS
PERCENT OF SAMPLE: 1%	AVERAGE TAFMS: 42 MOS (Military)
PREDOMINANT GRADE: E-4 (Military)	AVERAGE FED CIV SER: 200 MOS (Civilian)
WG-06 (Civilian)	
AVERAGE NUMBER OF TASKS PERFORMED: 41	

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
K341	Cut grass using tractors with mower attachments	88
K339	Cut grass using riding lawn mowers	88
K340	Cut grass using towed mowers	83
K356	Perform shop maintenance on mowers	79
M398	Haul materials using dump trucks	79
K357	Remove sod using sod cutters	75
K358	Remove tree stumps using tractors with stump grinder attachments	71
F152	Clear trees, vegetation, shrubs, or debris from areas using handtools	71
M396	Dump materials from dump trucks with tailgate down	63
M399	Spread materials from dump trucks	63
K359	Spread rock or heavy gravel by hand to prevent erosion	63
K347	Loosen ground using rotary tillers	63
L371	Haul materials using forklifts	58
N434	Tow equipment using tractors	54
M397	Dump materials from dump trucks with tailgate up	54
T623	Clean snow from snow removal equipment	50
T649	Remove snow using dump trucks with snowplow attachments	50
F161	Excavate areas using handtools	46
F151	Clear trees, vegetation, shrubs, or debris from areas using construction equipment	46
F168	Maintain handtools	46
L378	Load or off-load materials or equipment using forklifts	46
K338	Cut banks using slope mowers	42
M400	Tow trailers or equipment using dump trucks	42
K354	Mix soils using rotary tillers	42
T620	Attach or remove snowplows on dump trucks	42

TABLE V

SWEEPER OPERATOR JOB (ST0110)

GROUP SIZE: 5
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-5 (Military)
 WG-07/08 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 8

AVERAGE TICF: 188 MOS
 AVERAGE TAFMS: 191 MOS (Military)
 AVERAGE FED CIV SER: 227 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
S613	Sweep areas, other than airfields, using multipurpose sweepers	100
S611	Sweep airfield pavements using multipurpose sweepers	80
S616	Vacuum areas using handheld-sweeper hose attachments	80
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	60
F162	Inspect airdrome for foreign objects	40
F163	Inspect airdrome for pavement damage	40
S599	Install or remove broom cores or broom segments on sweepers	40

TABLE VI

TRAINING JOB (ST0162)

GROUP SIZE: 5
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-5 (Military)
 0 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 63

AVERAGE TICF: 123 MOS
 AVERAGE TAFMS: 133 MOS (Military)
 AVERAGE FED CIV SER: 0 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
D92	Administer tests	100
D117	Write test questions	100
D98	Conduct resident course classroom training	100
D115	Score tests	100
D112	Prepare training aids	100
F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles	100
F174	Perform operator inspections and maintenance on pavements and construction heavy equipment	100
D106	Draft lesson plans	80
D100	Counsel trainees on training progress	80
F173	Perform operator inspections and maintenance on pavements and construction equipment attachments	80
L363	Attach or remove multipurpose buckets on front-end loaders	80
L372	Haul materials using front-end loaders with forklift attachments	80
L371	Haul materials using forklifts	80
L362	Attach or remove forklift attachments on front-end loaders	80
L376	Level materials using front-end loaders with multipurpose buckets	80
L387	Stockpile materials using front-end loaders	80
D104	Develop resident course curriculum materials	60
D110	Evaluate training methods, techniques, or programs	60

TABLE VII

MOBILITY/CONTINGENCY EQUIPMENT OPERATOR JOB (ST0080)

GROUP SIZE: 5
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-4 (Military)
 0 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 38

AVERAGE TICF: 98 MOS

AVERAGE TAFMS: 110 MOS (Military)

AVERAGE FED CIV SER: 0 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
L371	Haul materials using forklifts	100
X772	Prepare palletized equipment for deployments	100
L378	Load or off-load materials or equipment using forklifts	100
F168	Maintain handtools	80
S585	Haul materials using skid-steer loaders with forklift attachments	80
F185	Stripe or mark pavements, other than airfield	80
X770	Prepare equipment or vehicles for airlift deployments	80
E128	Inventory equipment, tools, or supplies	60
E129	Locate information in technical or commercial publications	60
L388	Tow equipment using forklifts	60
S577	Attach or remove attachments to or from skid-steer loaders	60
X751	Erect or strike tents, other than TEMPER tents	60
E141	Turn in equipment, tools, or supplies	60
X739	Assemble or disassemble AM-2 matting	60
F184	Stripe or mark airfield pavements	60
X764	Pack or unpack AM-2 kits	60
K356	Perform shop maintenance on mowers	60
X771	Prepare equipment or vehicles for sealift deployments	60
S604	Load or off-load construction equipment or materials on drop-gooseneck trailers	60
K339	Cut grass using riding lawn mowers	60
S617	Secure equipment or materials for transport	60
C90	Write EPRs	60
X743	Camouflage equipment or materials	60

TABLE VIII

VEHICLE CONTROL JOB (ST0028)

GROUP SIZE: 11	AVERAGE TICF: 172 MOS
PERCENT OF SAMPLE: 1%	AVERAGE TAFMS: 184 MOS (Military)
PREDOMINANT GRADE: E-5 (Military)	AVERAGE FED CIV SER: 251 MOS (Civilian)
WL-09 (Civilian)	
AVERAGE NUMBER OF TASKS PERFORMED: 13	

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS	PMP
E139 Research equipment authorizations	82
C85 Investigate accidents or incidents	73
E121 Complete accident or incident report forms	64
E129 Locate information in technical or commercial publications	55
B28 Conduct or participate in staff meetings	45
D115 Score tests	36
C91 Write staff studies, surveys, or special reports, other than training reports	36
E122 Complete equipment request forms	36
A14 Plan or prepare briefings	36

TABLE IX

SUPERVISORY AND MANAGEMENT CLUSTER (ST0016)

GROUP SIZE: 219

PERCENT OF SAMPLE: 12%

PREDOMINANT GRADE: E-6/7 (Military)
Varied (Civilian)

AVERAGE TICF: 165 MOS

AVERAGE TAFMS: 180 MOS (Military)

AVERAGE FED CIV SER: 235 MOS (Civilian)

AVERAGE NUMBER OF TASKS PERFORMED: 54

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
A3	Coordinate work activities with other civil engineering shops	76
B28	Conduct or participate in staff meetings	74
A6	Determine work priorities	73
B30	Counsel subordinates on personal or military-related problems	73
C90	Write EPRs	70
A15	Plan or schedule work assignments or requirements	68
A5	Determine requirements for space, personnel, equipment, or supplies	67
A9	Develop work methods or procedures	64
A14	Plan or prepare briefings	62
A1	Assign personnel to duty positions	61
B29	Conduct supervisory orientations of newly assigned personnel	61
C65	Conduct performance feedback worksheet (PFW) evaluation sessions	59
A25	Schedule leaves, passes, or TDYs	58
C74	Evaluate personnel for compliance with performance standards	57
B56	Resolve technical problems for subordinates	55
B55	Interpret policies, directives, or procedures for subordinates	55
B50	Implement safety or security programs or procedures	54
A4	Coordinate work progress with base civil engineering scheduling	53
B53	Initiate actions required to correct substandard performance of subordinates	53
C75	Evaluate personnel for promotion, demotion, reclassification, or special awards	52
B58	Supervise civilian personnel	52
B41	Direct maintenance or utilization of equipment	52
A2	Assign sponsors for newly assigned personnel	51
A18	Plan special projects	51

TABLE IXA

EXPEDIENT REPAIR AND CONSTRUCTION NCOIC JOB (ST0102)

GROUP SIZE: 7
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-5 (Military)
 0 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 54

AVERAGE TICF: 165 MOS
 AVERAGE TAFMS: 180 MOS (Military)
 AVERAGE FED CIV SER: 0 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
 PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
X753	Fill bomb-damaged areas with select fill	100
X745	Clear crater upheaves	100
A3	Coordinate work activities with other civil engineering shops	86
B28	Conduct or participate in staff meetings	86
X773	Preposition select fill materiel for crater repair	86
X744	Clean runway surface damaged areas	86
X752	Fill bomb-damaged areas with blown debris	86
X754	Finish grade-to-surface roughness specifications	86
X780	Tow RRR patches	86
B54	Interpret blueprints	71
A4	Coordinate work progress with base civil engineering scheduling	71
A6	Determine work priorities	71
A9	Develop work methods or procedures	71
X762	Measure crater upheave for maximum allowances	71
E126	Enter supply data into Civil Engineer Material Acquisition Systems (CEMASS)	71
X756	Install geotextiles	57
X751	Erect or strike tents, other than TEMPER tents	57
E129	Locate information in technical or commercial publications	57
C67	Evaluate budget requirements	57
A5	Determine requirements for space, personnel, equipment, or supplies	57
C68	Evaluate inspection reports or procedures	57
B31	Develop tables, graphs, or diagrams for technical reports	57
A14	Plan or prepare briefings	57
X746	Conduct convoy operations	57

TABLE IXB

SUPPLY CUSTODIAN JOB (ST0092)

GROUP SIZE: 5
 PERCENT OF SAMPLE: Less than 1%
 PREDOMINANT GRADE: E-5/6 (Military)
 0 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 23

AVERAGE TICF: 168 MOS
 AVERAGE TAFMS: 171 MOS (Military)
 AVERAGE FED CIV SER: 0 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
E128	Inventory equipment, tools, or supplies	100
E141	Turn in equipment, tools, or supplies	100
A5	Determine requirements for space, personnel, equipment, or supplies	80
E126	Enter supply data into Civil Engineer Material Acquisition Systems (CEMASs)	80
E142	Validate benchstock requirements	80
E123	Complete purchase request forms, other than for equipment	80
E127	Estimate benchstock requirements	80
E143	Verify supply listings	60
E122	Complete equipment request forms	60
C90	Write EPRs	60
A6	Determine work priorities	40
A10	Draft budget requirements	40
X753	Fill bomb-damaged areas with select fill	40
E136	Maintain supply stock levels	40
E137	Maintain TO files	40
E140	Review production data from WIMSs	40
E125	Enter production data into work information management systems (WIMSs)	40
X745	Clear crater upheaves	40
X744	Clean runway surface damaged areas	40
X743	Camouflage equipment or materials	40
E119	Annotate civilian time cards or forms	40
E120	Attach or annotate equipment status labels or tags	40

TABLE IXC

FIRST-LINE SUPERVISOR JOB (ST0085)

GROUP SIZE: 13

AVERAGE TICF: 164 MOS

PERCENT OF SAMPLE: 1%

AVERAGE TAFMS: 166 MOS (Military)

PREDOMINANT GRADE: E-4/5 (Military)
0 (Civilian)

AVERAGE FED CIV SER: 0 MOS (Civilian)

AVERAGE NUMBER OF TASKS PERFORMED: 27

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS
PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
C90	Write EPRs	100
B30	Counsel subordinates on personal or military-related problems	92
C65	Conduct performance feedback worksheet (PFW) evaluation sessions	85
B60	Supervise Pavements and Construction Equipment Journeymen (AFSC 3E251)	77
D97	Conduct OJT	77
B59	Supervise Pavements and Construction Equipment Apprentices (AFSC 3E231)	69
D111	Maintain training records, charts, or graphs	69
B28	Conduct or participate in staff meetings	62
A15	Plan or schedule work assignments or requirements	62
B29	Conduct supervisory orientations of newly assigned personnel	62
A6	Determine work priorities	54
C74	Evaluate personnel for compliance with performance standards	54
D100	Counsel trainees on training progress	54
A1	Assign personnel to duty positions	54
E129	Locate information in technical or commercial publications	46
D101	Determine training requirements	46

TABLE IXD

READINESS MANAGER JOB (ST0133)

GROUP SIZE: 14
 PERCENT OF SAMPLE: 1%
 PREDOMINANT GRADE: E-7 (Military)
 0 (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 47

AVERAGE TICF: 175 MOS
 AVERAGE TAFMS: 191 MOS (Military)
 AVERAGE FED CIV SER: 0 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
B28	Conduct or participate in staff meetings	93
D101	Determine training requirements	86
A14	Plan or prepare briefings	86
A11	Establish organizational policies, such as office instructions (OIs) or standard operating procedures (SOPs)	79
A8	Develop self-inspection programs	71
D99	Conduct training conferences or briefings	71
A10	Draft budget requirements	71
B51	Implement self-inspection programs	64
D114	Schedule advanced, special, or ancillary training	64
C91	Write staff studies, surveys, or special reports, other than training reports	64
C77	Evaluate RRR exercises	64
B45	Direct RRR exercises	64
C90	Write EPRs	64
A16	Plan Rapid Runway Repair (RRR) operations	64
A18	Plan special projects	64
B29	Conduct supervisory orientations of newly assigned personnel	57
E129	Locate information in technical or commercial publications	57
A17	Plan safety or security programs	57
B55	Interpret policies, directives, or procedures for subordinates	57
B50	Implement safety or security programs or procedures	57
D111	Maintain training records, charts, or graphs	57
A1	Assign personnel to duty positions	57
B30	Counsel subordinates on personal or military-related problems	57
D106	Draft lesson plans	57

TABLE IXE

SENIOR SUPERVISOR JOB (ST0129)

GROUP SIZE: 123
 PERCENT OF SAMPLE: 7%
 PREDOMINANT GRADE: E-6/7 (Military)
 Varied (Civilian)
 AVERAGE NUMBER OF TASKS PERFORMED: 69
 AVERAGE TICF: 177 MOS
 AVERAGE TAFMS: 192 MOS (Military)
 AVERAGE FED CIV SER: 242 MOS (Civilian)

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING (PMP):

REPRESENTATIVE TASKS		PMP
A6	Determine work priorities	96
A3	Coordinate work activities with other civil engineering shops	95
B30	Counsel subordinates on personal or military-related problems	93
A15	Plan or schedule work assignments or requirements	93
A9	Develop work methods or procedures	87
A5	Determine requirements for space, personnel, equipment, or supplies	85
A25	Schedule leaves, passes, or TDYs	85
C90	Write EPRs	84
A1	Assign personnel to duty positions	83
B28	Conduct or participate in staff meetings	82
B56	Resolve technical problems for subordinates	81
B29	Conduct supervisory orientations of newly assigned personnel	81
B55	Interpret policies, directives, or procedures for subordinates	80
C65	Conduct performance feedback worksheet (PFW) evaluation sessions	80
B58	Supervise civilian personnel	78
A4	Coordinate work progress with base civil engineering scheduling	78
C74	Evaluate personnel for compliance with performance standards	78
B53	Initiate actions required to correct substandard performance of subordinates	78
C75	Evaluate personnel for promotion, demotion, reclassification, or special awards	75

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APPENDIX B
TASK MODULES.

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These task modules (TMs) were developed to illustrate the content of jobs by summarizing tasks performed in common by incumbents across the Pavements and Construction Equipment Operator career ladder. These TMs were derived by statistical clustering process in CODAP that identifies groups of related tasks and groups them together to form TMs. The process for identifying these related tasks is called coperformance. Coperformance assumes that if incumbents perform task A and task B, there is a high likelihood that these two tasks share common skills and knowledge and can be trained together. For example, if an individual performs one pavements and construction maintenance task, the probability is very high that he or she also will perform other pavements and construction maintenance tasks. Thus, the group of maintenance tasks can be considered a "natural group" of associated or related tasks (see TM 0001) below. CODAP calculates an index of co-performance for each task with every other task by examining the task performance patterns of all the survey respondents as a whole. The statistical clustering generally approximated these "natural groupings."

The title of each TM is our best estimate as to the general subject content of the group of tasks. These TMs are useful for organizing the task data into meaningful units and as a way to concisely summarize the extensive job data. However, TMs are only one way to organize the information. Other strategies may also be valid.

0001	ST0717	Dump or haul w/dump trucks
------	--------	----------------------------

- | | | |
|---|------|---|
| 1 | M394 | Attach or remove trailers or equipment on dump trucks |
| 2 | M396 | Dump materials from dump trucks with tailgate down |
| 3 | M397 | Dump materials from dump trucks with tailgate up |
| 4 | M398 | Haul materials using dump trucks |
| 5 | M399 | Spread materials from dump trucks |
| 6 | M400 | Tow trailers or equipment using dump trucks |

0002	ST0713	Level, backfill, or stockpile w/front-end loaders
------	--------	---

- | | | |
|----|------|--|
| 1 | L361 | Attach or remove boom attachments on front-end loaders |
| 2 | L362 | Attach or remove forklift attachments on front-end loaders |
| 3 | L363 | Attach or remove multipurpose buckets on front-end loaders |
| 4 | L364 | Backfill excavations using front-end loaders |
| 5 | L365 | Change bucket teeth caps or shanks on front-end loaders |
| 6 | L366 | Change cutting edges on front-end loaders |
| 7 | L373 | Haul materials using front-end loaders with multipurpose buckets |
| 8 | L375 | Level areas by backdragging using front-end loaders |
| 9 | L376 | Level materials using front-end loaders with multipurpose buckets |
| 10 | L377 | Load materials using front-end loaders with buckets |
| 11 | L379 | Load or off-load materials using front-end loaders with boom attachments |
| 12 | L382 | Perform dozer, scraper, or clamshell operations using front-end loader with multipurpose buckets |
| 13 | L386 | Spread materials using front-end loaders |
| 14 | L387 | Stockpile materials using front-end loaders |
| 15 | L389 | Tow equipment using front-end loaders |

0003	ST0728	Load or haul w/forklifts & front-end loaders
1	L371	Haul materials using forklifts
2	L372	Haul materials using front-end loaders with forklift attachments
3	L378	Load or off-load materials or equipment using forklifts
4	L380	Load or off-load materials using front-end loaders with forklift attachments
5	L381	Load or off-load materials using front-end loaders with forks attached to buckets
6	L383	Raise, lower, or move personnel on forklifts using personnel baskets
7	L384	Remove or replace fork extensions on forklifts
9	L388	Tow equipment using forklifts
0004	ST0531	Backfill, excavate, or load w/backhoes
1	N405	Backfill using backhoes with backhoe booms
2	N406	Backfill using backhoes with front buckets
3	N411	Compact soil using backhoe with compactor attachments
4	N412	Demolish buildings using backhoes or tractors with backhoe attachments
5	N416	Excavate subsurface areas using backhoes, other than trenches
6	N419	Excavate trenches using backhoes
7	N421	Expose underground utilities using backhoes or tractors with backhoe attachments
8	N0422	Lift and position materials or equipment using backhoes or tractors with backhoe attachments
9	N423	Load materials using backhoes or tractors with backhoe attachments
10	N428	Remove poles using backhoes or tractors with backhoe attachments
11	N430	Spread materials using backhoes or tractors with backhoe attachments
0005	ST0509	Excavate w/front-end loaders
1	L367	Clear land using front-end loaders with root-rake attachments
2	L368	Excavate ditches or trenches using front-end loaders
3	L369	Excavate subsurface areas using front-end loaders
4	L370	Excavate surface areas, other than ditches or trenches, using front-end loaders
5	L385	Rough grade areas using front-end loaders
0006	ST0425	Haul construction equipment/materials
1	S600	Haul construction equipment using drop-gooseneck trailers
2	S601	Haul construction equipment using lowboys
3	S602	Haul construction equipment using tilt-bed trailers
4	S603	Haul construction equipment using cargo vehicles
5	S604	Load or off-load construction equipment or materials on drop-gooseneck trailers
6	S605	Load or off-load construction equipment or materials on lowboys
7	S606	Load or off-load construction equipment or materials on tilt-bed trailers
8	S617	Secure equipment or materials for transport
9	S618	Support materials or equipment using shoring, cribbing, or dunnage
10	U669	Chock materials using wedges

0007	ST0495	Clean asphalt or concrete cracks
1	F146	Clean asphalt or concrete cracks using compressed air
2	F147	Clean asphalt or concrete cracks using crack saws
3	F148	Clean asphalt or concrete cracks using routers
4	F149	Clean asphalt or concrete surfaces or joints by air blasting
5	F150	Clean asphalt or concrete surfaces or joints by sandblasting
6	F182	Seal joints or cracks by hand
7	F183	Seal joints or cracks using joint-sealing machines
0008	ST0593	Level or fill w/dozers
1	P466	Adjust angle, pitch, or tilt of dozer blades
2	P472	Backdrag using dozers
3	P473	Backfill using dozers
4	P489	Level areas using dozers
5	P490	Load or off-load dozers on trailers
6	P503	Stockpile materials using dozers
0009	ST0479	Operate or maintain areas w/graders
1	O437	Backfill using graders with turntable blades
2	O440	Construct road shoulders using graders
3	O441	Crown dirt roads using graders
4	O442	Cut and fill using graders
5	O447	Cut V-ditches using graders
6	O448	Finish grade areas using graders
7	O450	Level areas using graders
8	O451	Maintain ditches using graders
9	O452	Maintain road shoulders using graders
10	O453	Maintain unpaved surfaces using graders
11	O455	Remove or replace grader cutting edges or end-bits
12	O458	Rip soil using graders with ripper or scarifier attachments
13	O459	Rough grade areas using graders
14	O462	Spread materials using graders with turntable blades
15	O463	Strip topsoil using graders
16	O465	Windrow materials using graders
0010	ST0519	Excavate w/dozers
1	P476	Clear brush or small trees using dozers, other than with root-rake attachments
2	P486	Excavate subsurface areas using dozers
3	P487	Excavate surface areas using dozers
4	P499	Rough grade using dozers

0011	ST0494	Maintaining graders
1	O435	Attach or remove grader attachments, other than lasers systems
2	O438	Change scarifier caps or shanks on graders
3	O439	Change scarifier shanks on graders
4	O449	Install or remove laser system grader attachments
5	O456	Remove or replace grader ripper or scarifier teeth
0012	ST0408	Earthmoving or excavate w/excavators
1	S569	Attach or remove attachments on excavators
2	S570	Backfill or level using excavators
3	S571	Excavate surface areas using excavators
4	S572	Excavate subsurface areas using excavators with bucket attachments
5	S573	Break hard materials using excavators with jackhammer attachments
6	S574	Lift and position materials or equipment using excavators
7	S576	Compact soil using excavators with compactor plates
0013	ST0397	Operate skid-steer loader
1	S577	Attach or remove attachments to or from skid-steer loaders
2	S578	Backfill or level using skid-steer loaders with bucket attachments
3	S582	Drill holes using skid-steer loaders with earth auger attachments
4	S583	Excavate surface areas using skid-steer loaders
5	S584	Grade areas using skid-steer loaders
6	S585	Haul materials using skid-steer loaders with forklift attachments
7	S586	Load materials using skid-steer loaders with bucket attachments
8	S587	Load or off-load skid-steer loaders on trailers
9	S588	Spread materials using skid-steer loaders
10	S589	Stockpile materials using skid-steer loaders
0014	ST0245	Earthmoving or excavate w/backhoe; tractor
1	N401	Attach or remove backhoe attachments
2	N402	Attach or remove tractor attachments
3	N408	Break pavement using backhoes or tractors with jackhammer attachments
4	N409	Change teeth on backhoe buckets
5	N410	Clean pavements using tractors with sweeper attachments
6	N413	Determine towing procedures based on load connected
7	N414	Dig trenches using tractors with trencher attachments
8	N415	Drill holes using tractors with earth auger attachments
9	N417	Excavate subsurface areas using tractors with backhoe attachments, other than trenches
10	N418	Excavate surface areas using tractors with front-end loader attachments
11	N420	Excavate trenches using tractors with backhoe attachments
12	N424	Load materials using tractors with front-end loader attachments

0014	ST0245	Earthmoving or excavate w/backhoe; tractor (Continued)
13	N429	Remove stones using tractors with stone rake attachments
14	N432	Spread materials using tractors with front-end loader attachments
15	N434	Tow equipment using tractors
0015	ST0469	Earthmoving w/tractors & atchs
1	N403	Backblade using tractors with blade attachments
2	N404	Backblade using tractors with dragbox attachments
3	N407	Backfill using tractors with blade attachments
4	N431	Spread materials using tractors with blade attachments
0016	ST0324	Clean, inspect, or repair drainage structures
1	I278	Clean, inspect, or repair asphalt drains
2	I279	Clean, inspect, or repair catch basins
3	I281	Clean, inspect, or repair concrete drains
4	I289	Clean, inspect, or repair manholes
5	I304	Fill washouts around drainage structures
6	I305	Inspect drainage facilities
0017	ST0456	Install piping into drainage structures
1	I306	Install prefabricated culverts
2	I313	Lower piping into trenches by hand
3	I314	Lower piping into trenches using backhoes
4	I318	Lower piping into trenches using front-end loaders
0018	ST0202	Patch or seal concrete
1	G187	Apply bonding agents
2	G188	Apply moisture barriers to concrete bases
3	G227	Patch concrete using bituminous material
4	G228	Patch concrete using cement mortar
5	G229	Patch concrete using epoxy mortar
6	G243	Repair spalls on airfield surfaces
7	G244	Seal concrete surfaces
8	G245	Tamp or rod concrete form edges or corners
0019	ST0141	Construct or maintain concertina/privacy fences
1	K336	Construct concertina fences
2	K337	Construct privacy fences
3	K351	Maintain concertina fences
4	K352	Maintain privacy fences
5	T631	Install or remove snow fences
6	T635	Maintain snow fences

0020	ST0083	Maintain flexible pavements
1	H247	Apply aggregate to bleeding asphalt pavements
2	H251	Compact asphalt using towed rollers
3	H254	Fill asphalt distributors
4	H255	Hand spray asphalt
5	H256	Hand spread bituminous materials
6	H258	Operate asphalt distributors
7	H269	Regulate rates of prime or tack coat applications
8	H270	Skin patch ponding or birdbaths in asphalt
9	H273	Tack coat concrete using liquid asphalt
10	H274	Tow asphalt heating kettles
11	H277	Treat asphalt surfaces with slurry seal coats
0021	ST0212	Install drainage structures w/cranes/excavators
1	I307	Install prefabricated drains, other than culverts
2	I308	Join concrete pipes
3	I309	Join metal culvert pipes
4	I310	Join polyvinyl chloride (PVC) pipes
5	I311	Join tile pipes
6	I312	Line drainage systems with riprap
7	I315	Lower piping into trenches using cranes
8	I316	Lower piping into trenches using excavators
9	I317	Lower piping into trenches using forklifts
0022	ST0179	Maintain surface drainage structures
1	I280	Clean, inspect, or repair check dams
2	I282	Clean, inspect, or repair drainage collection ponds
3	I283	Clean, inspect, or repair earthen dams
4	I284	Clean, inspect, or repair embankments
5	I285	Clean, inspect, or repair flumes
6	I286	Clean, inspect, or repair french drainage systems
7	I287	Clean, inspect, or repair headwalls
8	I290	Construct asphalt drains
9	I291	Construct catch basins
10	I293	Construct concrete drains
11	I296	Construct embankments
12	I298	Construct french drainage systems
13	I299	Construct headwalls
14	I301	Construct manholes

0023	ST0170	Dig w/skid-steer loaders
1	S579	Change teeth on skid-steer loader buckets
2	S580	Dig ditches using skid-steer loaders with backhoe attachments
3	S581	Dig ditches using skid-steer loaders with trencher attachments
4	S590	Sweep areas using skid-steer loader with sweeper attachments
5	S591	Backfill using ditching or trenching machines
0024	ST0228	Cut or earthmoving w/dozers
1	P474	Bench cut using dozers
2	P480	Cut flat-bottom ditches using dozers
3	P483	Cut V-ditches using dozers
4	P484	Demolish buildings or foundations using dozers
5	P485	Downhill cut using dozers
6	P491	Loosen materials using dozers with backrippers
7	P492	Loosen materials using dozers with ripper attachments
8	P494	Pull heavy objects using dozers with winch attachments
9	P496	Remove large boulders using dozers
10	P497	Remove large trees using dozers
11	P500	Sidehill cut using dozers
12	P501	Slope embankments using dozers
13	P502	Slot doze using dozers
14	P505	Tow heavy equipment using dozers
0025	ST0193	Cut or earthmoving w/graders
1	O436	Backfill using graders with front-mounted blade attachments
2	O443	Cut asphalt using graders with cutting attachments
3	O444	Cut firebreaks using graders
4	O445	Cut flat-bottom ditches using graders
5	O446	Cut pioneer cuts using graders
6	O454	Mix materials using graders
7	O457	Reverse grade using graders
8	O460	Slope embankments using graders
9	O461	Spread materials using graders with front-mounted blade attachments
10	O464	Tow equipment using graders
0026	ST0329	Maintain dozers
1	P467	Attach or remove backripper teeth on dozer blades
2	P468	Attach or remove dozer blades on dozers
3	P469	Attach or remove push blocks on dozers
4	P470	Attach or remove ripper attachments on dozers
5	P475	Change cutting edges or end-bits on dozer blade attachments

0027	ST0330	Loosen or break-up materials w/tractors/atches
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| 1 | K344 | Loosen ground using disc harrows |
| 2 | K345 | Loosen ground using plows |
| 3 | K346 | Loosen ground using rippers |
| 4 | K347 | Loosen ground using rotary tillers |
| 5 | K348 | Loosen ground using scarifer teeth |
| 6 | N425 | Loosen materials using tractors with ripper attachments |
| 7 | N426 | Loosen materials using tractors with scarifier attachments |
| 8 | N427 | Pulverize soil using tractors with harrow attachments |
| 9 | N433 | Spread materials using tractors with scraper attachments |
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0028	ST0131	Operate dozers
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| 1 | P471 | Attach or remove winch attachments on dozers |
| 2 | P477 | Clear land using dozers with root-rake attachments |
| 3 | P478 | Cover fire hot spots using dozers |
| 4 | P479 | Cut firebreaks using dozers |
| 5 | P481 | Cut pioneer cuts using dozers |
| 6 | P488 | Install or remove tracks on track-mounted dozers |
| 7 | P498 | Rig or remove cables on winches or other power control units (PCUs) |
| 8 | P504 | Tandem doze using dozers |
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0029	ST0271	Maintain grounds
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| 1 | K338 | Cut banks using slope mowers |
| 2 | K339 | Cut grass using riding lawn mowers |
| 3 | K340 | Cut grass using towed mowers |
| 4 | K341 | Cut grass using tractors with mower attachments |
| 5 | K356 | Perform shop maintenance on mowers |
| 6 | K357 | Remove sod using sod cutters |
| 7 | K358 | Remove tree stumps using tractors with stump grinder attachments |
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0030	ST0333	Remove snow w/push-type equip
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| 1 | T619 | Add or remove ballast on snowplows |
| 2 | T620 | Attach or remove snowplows on dump trucks |
| 3 | T623 | Clean snow from snow removal equipment |
| 4 | T624 | Clear snow or ice from runway lights |
| 5 | T628 | Haul snow |
| 6 | T629 | Install or remove plow blade cutting edges |
| 7 | T630 | Install or remove shoes or castor wheels |
| 8 | T633 | Load snow into trucks using front-end loaders |
| 9 | T637 | Prepare snow removal equipment for storage |
| 10 | T639 | Remove or replace air blast snow sweeper cores |
| 11 | T641 | Remove snow or ice using front-end loaders |
| 12 | T642 | Remove snow or ice using graders without wing-plow attachments |
| 13 | T644 | Remove snow or ice using snowblowers |

0030	ST0333	Remove snow w/push-type equip (Continued)
14	T645	Remove snow using air blast snow sweepers
15	T647	Remove snow using combination snowplows
16	T648	Remove snow using dump trucks with front-mounted brooms
17	T649	Remove snow using dump trucks with snowplow attachments
18	T656	Remove snow using reversible snowplows
19	T657	Remove snow using rollover snowplows
20	T665	Spread chemicals or abrasives over ice using spreaders
21	T668	Stockpile snow using front-end loaders
0031	ST0189	Remove snow w/rotary-type equip
1	T632	Install or remove underbody blades
2	T634	Load snow into trucks using rotary blowers
3	T636	Mark locations of runway lights, storm drains, or fixed obstacles
4	T638	Remove ice using rollover underbody scrapers
5	T646	Remove snow using bank-rotary snowblowers
6	T653	Remove snow using high-speed ribbon blowers with blade attachments
7	T654	Remove snow using high-speed ribbon blowers without blade attachments
8	T655	Remove snow using high-speed rotary snowblowers
9	T662	Restock chemicals for snow or ice control
10	T663	Spray chemicals over ice
11	T666	Stockpile snow using snowblowers
0032	ST0126	Organize or plan snow removal operations
1	A22	Prepare snow removal plans
2	B47	Direct snow removal operations
3	T625	Coordinate expected precipitation, temperatures, or winds with weather officers
4	T626	Coordinate runway or taxiway snow removal with tower operators or base operations
5	T627	Designate snow dump areas
0033	ST0062	Remove snow from streets/roads/other areas
1	T621	Attach or remove snowplows on tractors
2	T622	Attach or remove wing plows on graders
3	T640	Remove snow or ice using dozers
4	T650	Remove snow using front-end loaders with blade attachments
5	T651	Remove snow using front-end loaders with snowblower attachments
6	T652	Remove snow using graders with wing-plow attachments
7	T658	Remove snow using skid-steer loaders
8	T659	Remove snow using tractors with blade attachments
9	T660	Remove snow using V-plows
10	T661	Remove snow using 28-foot two-way displacement plows
11	T667	Stockpile snow using dozers

0034	ST0380	Repair craters before laying repair surface
1	X744	Clean runway surface damaged areas
2	X745	Clear crater upheaves
3	X752	Fill bomb-damaged areas with blown debris
4	X753	Fill bomb-damaged areas with select fill
5	X754	Finish grade-to-surface roughness specifications
6	X756	Install geotextiles
7	X762	Measure crater upheave for maximum allowances
8	X776	Remove water from craters
0035	ST0286	Install or remove AM-2 matting accessories
1	X737	Anchor AM-2 matting
2	X739	Assemble or disassemble AM-2 matting
3	X757	Install or remove ramps
4	X758	Install or remove starter keylocks
5	X759	Install or remove typical keylocks
6	X763	Melt and pour lead-sulfur anchoring mixture
7	X764	Pack or unpack AM-2 kits
8	X774	Remove or replace damaged AM-2 matting sections
9	X780	Tow RRR patches
0036	ST0124	Prepare for deployment/set up TEMPER tents
1	X740	Assemble or disassemble HARVEST BARE expandable (EXP) shelters
2	X750	Erect or strike TEMPER tents
3	X751	Erect or strike tents, other than TEMPER tents
4	X770	Prepare equipment or vehicles for airlift deployments
5	X771	Prepare equipment or vehicles for sealift deployments
6	X772	Prepare palletized equipment for deployments
0037	ST0504	Maintain or use prefab concrete slabs
1	X760	Maintain precast concrete slabs
2	X768	Place precast concrete slabs
3	X769	Position and adjust screed beams
4	X778	Square craters
5	X781	Tow screed beams in craters
6	X782	Transport screed beams
0038	ST0272	Repair craters w/FFGM
1	X738	Anchor folding fiberglass matting (FFGM)
2	X748	Construct emergency runways with FFGM surface membranes
3	X765	Pack or unpack FFGM kits
4	X766	Paint centerlines on minimum operating strips (MOSs)

0038	ST0272	Repair craters w/FFGM (Continued)
5	X767	Place FFGM landing surfaces
6	X775	Remove or replace FFGM landing surfaces
7	X777	Repair FFGM membranes
0039	ST0215	Rig or lift loads or equipment
1	R524	Determine boom angles
2	R525	Determine lifting capacities using load charts
3	R526	Direct crane operators using hand signals
4	R530	Inspect crane cables
5	R531	Inspect crane loads
6	R533	Install or remove crane cables
7	R541	Load or off-load equipment using hydraulic cranes
8	R545	Prepare loads for lifting by chains
9	R546	Prepare loads for lifting by fiber ropes
10	R547	Prepare loads for lifting by slings
11	R548	Prepare loads for lifting by spreader bars
12	R549	Prepare loads for lifting by wire ropes
13	R555	Rig or remove hook-block attachments on cranes
14	R560	Set outriggers for crane operations
15	U673	Inspect fiber ropes or wire rope cables
16	U674	Inspect rigging or hoisting accessories, such as hooks or shackles
17	U676	Lift or lower equipment using slings
18	U677	Lift or lower equipment using spreader bars
0040	ST0254	Earthmoving or excavate w/ cranes
1	R527	Engage or disengage crane fail-safe systems
2	R528	Excavate areas using hydraulic cranes with clamshells
3	R538	Load materials into dump trucks using cranes
4	R544	Position prefabricated structures using cranes
5	R550	Raise or lower personnel platforms using hydraulic cranes
6	R551	Remove damaged aircraft using cranes
7	R552	Rig or remove clamshell attachments on cranes
8	R557	Rig or remove personnel platforms on hydraulic cranes
9	R558	Rig taglines on materials or equipment
10	R559	Set or remove poles using cranes
11	R563	Stack palletized or crated materials using cranes
12	R566	Weight test lifting capacities of cranes
0041	ST0282	Maintain rigging/hoisting equipment
1	U670	Clean fiber ropes or wire rope cables
2	U671	Clean rigging or hoisting accessories, such as hooks or shackles
3	U672	Fabricate slings

0041	ST0282	Maintain rigging/hoisting equipment (Continued)
4	U675	Install wire rope clips on wire rope cables
5	U685	Place fiber ropes, wire rope cables, or slings in storage
6	U688	Splice wire rope cables
0042	ST0136	Earthmoving or excavate w/clamshell
1	R517	Adjust tagline winder tensions
2	R520	Backfill using clamshells
3	R540	Load or off-load cranes on trailers
4	R564	Stockpile loose materials using clamshells
0043	ST0256	Move equipment w/hoisting/rigging equipment
1	U676	Lift or lower equipment using slings
2	U679	Move or place equipment using block and tackle equipment
3	U680	Move or place equipment using cribbing
4	U681	Move or place equipment using dead-man devices
5	U683	Move or place equipment using rollers
6	U684	Move or place equipment using skids
7	U686	Recover vehicles using winches
8	U687	Rig block and tackle equipment
0044	ST0264	Install or remove cranes and atchs
1	R534	Install or remove electrical boom shields
2	R535	Install or remove fairleads
3	R536	Install or remove tagline winders
4	R537	Install or remove teeth on crane attachments
0045	ST0276	Operate or maintain cranes
1	R516	Adjust boom gantries
2	R518	Attach or remove crane booms
3	R519	Attach or remove excavator attachments on mechanical cranes
4	R521	Break concrete using demolition balls
5	R522	Clean or shape drainage ditches using draglines
6	R523	Demolish buildings using demolition balls
7	R529	Excavate areas using mechanical cranes with clamshells
8	R532	Install or remove crane booms or boom center sections
9	R539	Load materials into dump trucks using draglines
10	R542	Load or off-load equipment using mechanical cranes
11	R543	Position concrete bucket attachments with cranes
12	R553	Rig or remove demolition balls on cranes
13	R554	Rig or remove dragline attachments on cranes
14	R556	Rig or remove jibs on cranes

0046	ST0097	Earthmoving or excavate w/scrapers
1	P495	Push scrapers using dozers
2	Q506	Change cutting edges or end-bits on scrapers
3	Q507	Cut channels using scrapers
4	Q508	Cut or fill to grade using scrapers
5	Q510	Dump materials using scrapers
6	Q511	Excavate areas using scrapers
7	Q512	Haul materials using scrapers
8	Q513	Remove rocks using scrapers
9	Q514	Rig or reeve scrapers
10	Q515	Spread scraper loads
0047	ST0295	Construct waste water structures
1	I288	Clean, inspect, or repair leaching fields
2	I292	Construct check dams
3	I294	Construct drainage collection ponds
4	I295	Construct earthen dams
5	I297	Construct flumes
6	I300	Construct leaching fields
0048	ST0216	Mix bituminous materials
1	H260	Operate tow-type asphalt paving machines
2	H261	Perform blade-mix patching
3	H264	Produce asphalt in fixed asphalt batch plants
4	H265	Produce asphalt in portable asphalt batch plants
5	H266	Regulate rates of aggregate applications during surface treatment
6	H267	Regulate rates of aggregate applications while operating batch plants
7	H268	Regulate rates of bituminous pavement applications
8	H271	Spread asphalt materials using graders
9	H272	Spread chips using asphalt chip spreaders
10	H275	Treat asphalt surfaces with multiple-pass surface treatments
11	H276	Treat asphalt surfaces with single-pass surface treatments
0049	ST0203	Construct revetments
1	J319	Assemble or disassemble revetment kits
2	J321	Cap revetments
3	J322	Compact materials in revetment bins using handtools
4	J323	Compact materials in revetment bins using pneumatic tampers
5	J325	Construct revetments
6	J330	Establish alignment lines for revetments
7	J332	Fill revetment bins
8	J333	Line revetment corners with plastic

0050	ST0098	Construct or erect shelter
1	J320	Cap aircraft shelters
2	J324	Construct bunkers
3	J326	Cover bunkers
4	J327	Determine suitability of sub-base for revetments
5	J328	Erect aircraft shelter arches
6	J329	Erect aircraft shelter roof spans
7	J331	Fabricate forms for concrete bunkers
0051	ST0229	Direct horizontal operations
1	B34	Direct clearing operations
2	B35	Direct cut, fill, or compaction operations
3	B37	Direct grounds maintenance operations
4	B40	Direct maintenance of tool cribs
5	B41	Direct maintenance or utilization of equipment
6	B42	Direct pavement surfacing operations
7	B43	Direct pavement sweeping operations
8	B57	Supervise base appearance teams
9	F165	Interpret construction stakes
10	F166	Lay out areas for concrete or pavements
11	K342	Establish areas for construction materials storage
0052	ST0487	Perform management/supervisory activities
1	A1	Assign personnel to duty positions
2	A2	Assign sponsors for newly assigned personnel
3	B29	Conduct supervisory orientations of newly assigned personnel
4	B30	Counsel subordinates on personal or military-related problems
5	B59	Supervise Pavements and Construction Equipment Apprentices (AFSC 3E231)
6	B60	Supervise Pavements and Construction Equipment Journeymen (AFSC 3E251)
7	C65	Conduct performance feedback worksheet (PFW) evaluation sessions
8	C90	Write EPRs
9	D97	Conduct OJT
0053	ST0506	Organize or plan work activities
1	A3	Coordinate work activities with other civil engineering shops
2	A4	Coordinate work progress with base civil engineering scheduling
3	A6	Determine work priorities
4	A9	Develop work methods or procedures
5	A15	Plan or schedule work assignments or requirements
6	A25	Schedule leaves, passes, or TDYs
7	B54	Interpret blueprints

0054	ST0500	Evaluate or implement performance standards
1	B53	Initiate actions required to correct substandard performance of subordinates
2	B55	Interpret policies, directives, or procedures for subordinates
3	B56	Resolve technical problems for subordinates
4	C74	Evaluate personnel for compliance with performance standards
5	C75	Evaluate personnel for promotion, demotion, reclassification, or special awards
6	C85	Investigate accidents or incidents
7	C91	Write staff studies, surveys, or special reports, other than training reports
0055	ST0315	Organize or plan management activities
1	A8	Develop self-inspection programs
2	A10	Draft budget requirements
3	A11	Establish organizational policies, such as office instructions (OIs) or standard operating procedures (SOPs)
4	A12	Establish performance standards
5	A13	Plan layouts of facilities
6	A14	Plan or prepare briefings
7	A17	Plan safety or security programs
8	A18	Plan special projects
9	A19	Plan temporary duty (TDY) operations
10	B31	Develop tables, graphs, or diagrams for technical reports
11	B36	Direct development or maintenance of status boards, graphs, or charts
12	B61	Supervise Pavements and Construction Equipment Craftsmen (AFSC 3E271)
13	E135	Maintain status indicators, such as boards, graphs, or charts
14	F163	Inspect airdrome for pavement damage
0056	ST0413	Supervise civilians
1	A27	Write job or position descriptions
2	B58	Supervise civilian personnel
3	C69	Evaluate job or position descriptions
4	C83	Indorse civilian performance ratings or supervisory appraisals
5	C89	Write civilian performance ratings or supervisory appraisals
6	E119	Annotate civilian time cards or forms
0057	ST0214	Determine or implement training requirements
1	C88	Select individuals for specialized training
2	D94	Assign on-the-job training (OJT) trainers or supervisors
3	D101	Determine training requirements
4	D105	Direct or implement OJT programs
5	D108	Evaluate OJT trainers or trainees
6	D116	Verify personnel are enrolled in CDCs

0058	ST0122	Evaluate admin polices and procedures
1	A5	Determine requirements for space, personnel, equipment, or supplies
2	A7	Develop organizational or functional charts
3	B39	Direct maintenance of administrative files
4	B49	Implement cost-reduction programs
5	B50	Implement safety or security programs or procedures
6	B51	Implement self-inspection programs
7	B52	Implement suggestion programs
8	C63	Analyze work load requirements
9	C66	Evaluate administrative forms, files, or procedures
10	C67	Evaluate budget requirements
11	C68	Evaluate inspection reports or procedures
12	C70	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) Program standards
13	C71	Evaluate layouts of facilities
14	C72	Evaluate maintenance or use of workspace, equipment, or supplies
15	C73	Evaluate new equipment
16	C76	Evaluate procedures for storage, inventory, or inspection of property items
17	C78	Evaluate safety or security programs
18	C79	Evaluate self-inspection programs
19	C80	Evaluate suggestions
20	C82	Evaluate work schedules
0059	ST0076	Perform admin and supply activities
1	E120	Attach or annotate equipment status labels or tags
2	E121	Complete accident or incident report forms
3	E122	Complete equipment request forms
4	E123	Complete purchase request forms, other than for equipment
5	E125	Enter production data into work information management systems (WIMSS)
6	E126	Enter supply data into Civil Engineer Material Acquisition Systems (CEMASs)
7	E127	Estimate benchstock requirements
8	E128	Inventory equipment, tools, or supplies
9	E129	Locate information in technical or commercial publications
10	E130	Maintain activity issue, back order, or issue turn-in lists
11	E136	Maintain supply stock levels
12	E139	Research equipment authorizations
13	E140	Review production data from WIMSS
14	E141	Turn in equipment, tools, or supplies
15	E142	Validate benchstock requirements
16	E143	Verify supply listings

0060	ST0030	Perform training activities
1	C64	Complete USAF Graduate Evaluation Program forms, questionnaires, or correspondence
2	D92	Administer tests
3	D93	Annotate or initiate training quality reports
4	D95	Assign resident course instructors
5	D96	Brief unit staff personnel on training matters
6	D98	Conduct resident course classroom training
7	D99	Conduct training conferences or briefings
8	D102	Develop career development courses (CDCs)
9	D103	Develop or review specialty training standards (STs)
10	D104	Develop resident course curriculum materials
11	D106	Draft lesson plans
12	D107	Establish or maintain study reference files
13	D110	Evaluate training methods, techniques, or programs
14	D112	Prepare training aids
15	D113	Procure training aids, space, or equipment
16	D114	Schedule advanced, special, or ancillary training
17	D115	Score tests
18	D117	Write test questions
19	D118	Write training reports
0061	ST0034	Direct or implement P and E operations
1	A20	Prepare grass cutting plans
2	A21	Prepare pavements maintenance plans
3	A23	Prepare unit emergency plans
4	A24	Research specifications for rigid-mix composition
5	A26	Verify suitability of water for mixing concrete
6	B28	Conduct or participate in staff meetings
7	B32	Direct asphalt plant operations
8	B33	Direct building construction operations
9	B38	Direct gunnery range maintenance operations
10	B44	Direct railroad maintenance operations
11	B46	Direct sanitary fill operations
12	B48	Direct well-drilling operations
13	B62	Supervise Pavements and Construction Equipment Superintendents (AFSC 3E291)
14	C81	Evaluate unit emergency plans
15	C84	Indorse enlisted performance reports (EPRs)
16	C86	Participate in job evaluation boards
17	C87	Perform semiannual inspections of pavement areas

0062	ST0063	Handling hazardous materials
1	W715	Dispose of hazardous materials
2	W716	Identify and report hazardous materials, such as asbestos or contaminated waste
3	W728	Place or remove hazardous materials absorbent pads or booms
4	W729	Place or remove hazardous materials containment booms
5	W730	Remove hazardous materials from spill areas using mechanical equipment, such as skimmers or pumps
0063	ST0158	Handling explosives
1	W708	Connect detonating cord or sensitized detonating cord to explosive charges
2	W709	Connect safety fuses with nonelectric blasting caps to explosive charges
3	W713	Cut trees using detonator cord
4	W714	Detonate explosive charges
5	W725	Lay out and connect electrical blasting caps and firing wire circuits for explosive charges
6	W727	Mix chemicals for cratering charges
7	W732	Test electrical blasting caps and circuits
8	W733	Transport explosives
9	W736	Wire electrical series for explosive charges
0064	ST0044	Maintain railroad tracks
1	W718	Inspect rails, anchors, or tie plates
2	W720	Install or remove crossties
3	W721	Install or remove railroad crossing signals
4	W722	Install or remove railroad crossovers
5	W723	Install or remove track rails
6	W724	Install or remove train crew warning signals
7	W726	Lubricate movable track sections
8	W731	Repair railroad switches or frogs
0065	ST0577	Perform range support activities
1	V690	Clean asphalt or concrete range grids
2	V692	Construct wooden targets or storage areas
3	V695	Install target areas
4	V697	Maintain range gates
5	V698	Maintain strafe targets
6	V699	Maintain target areas
7	V704	Prepare target vehicles for range use
8	V705	Score range targets
9	V707	Tow wheel targets

0066	ST0676	Earthmoving ranges w/ miscellaneous equipment
1	V689	Attach and lift vehicles using wreckers
2	V691	Clear destroyed heavy armor from ranges
3	V693	Coordinate bomb removal with Explosive Ordinance Disposal (EOD)
4	V694	Coordinate clearance for range targets with Range Operations Control Center or Range Safety
5	V696	Load or off-load armored equipment on trailers
6	V700	Perform winch operations on tank haulers
7	V701	Pick up expended bombs or shells
8	V702	Pick up expended shells by hand
9	V703	Position armored vehicles
10	V706	Set wrecker outriggers for heavy winching operations
11	W717	Identify and report suspected unexploded ordnance (UXO)
0067	GP0004	Compact materials
1	F153	Compact base course materials or subgrade using pactors
2	F154	Compact base course materials or subgrade using pneumatic-tired rollers
3	F155	Compact base course materials or subgrade using sheepsfoot rollers
4	F156	Compact base course materials or subgrade using small powered equipment or hand tampers
5	F157	Compact base course materials or subgrade using steel-wheeled rollers
6	F158	Compact base course materials or subgrade using towed rollers
7	F159	Compact base course materials or subgrade using vibratory rollers
8	F170	Perform chemical stabilization of subgrade using graders
9	H248	Compact asphalt using pneumatic-tired rollers
10	S567	Add or remove ballast in rollers
11	S568	Attach or remove towed rollers on towing equipment
0068	GP0005	Handling soils
1	F171	Perform chemical stabilization of subgrade using rototillers
2	K353	Mix soils using handtools
3	K354	Mix soils using rotary tillers
4	K355	Mix soils using tractor-drawn equipment
5	S608	Perform chemical or mechanical soil stabilization using rototillers
0069	GP0006	Paint or strip surfaces
1	F179	Remove paint from concrete surfaces or pavements using sandblasters
2	F180	Remove paint from concrete surfaces or pavements using water blasters
3	F184	Stripe or mark airfield pavements
4	F185	Stripe or mark pavements, other than airfield

0070	GP0007	Inspect or maintain equipment
1	F173	Perform operator inspections and maintenance on pavements and construction equipment attachments
2	F174	Perform operator inspections and maintenance on pavements and construction heavy equipment
3	F175	Perform operator inspections and maintenance on pavements and construction equipment vehicles
0071	GP0008	Cut or compact asphalt
1	H249	Compact asphalt using small powered equipment or hand tampers
2	H250	Compact asphalt using steel-wheeled rollers
3	H253	Cut asphalt
0072	GP0011	Use or operate dump trucks
1	M390	Apply nonstick coating to dump truck beds for hauling asphalt
2	M391	Attach or remove aggregate spreaders on dump trucks
3	M392	Attach or remove asphalt distributors on dump trucks
4	M393	Attach or remove spreaders on dump trucks, other than aggregate
5	M395	Dump asphalt into self-propelled spreaders using dump trucks
0073	GP0012	Use or operate draglines
1	R561	Shape stream beds using draglines
2	R562	Slope embankments using draglines
3	R565	Stockpile loose materials using draglines
0074	GP0013	Use or operate gradealls
1	S575	Grade ditch lines or hillsides using gradealls with shaping blade attachments
2	S592	Change buckets or cutting edges on gradealls
3	S593	Excavate surface areas using gradealls
0075	GP0014	Evaluate or maintain training progress
1	D100	Counsel trainees on training progress
2	D109	Evaluate progress of trainees
3	D111	Maintain training records, charts, or graphs
0076	GP0015	Manage RRR operations/exercises
1	A16	Plan Rapid Runway Repair (RRR) operations
2	B45	Direct RRR exercises
3	C77	Evaluate RRR exercises

0077 GP0016 Construct flexible pavements

- 1 H252 Compute quantity of asphalt
- 2 H257 Load or off-load asphalt paving machines
- 3 H259 Operate self-propelled asphalt paving machines
- 4 H262 Perform plant-mix cold-laid patching
- 5 H263 Perform plant-mix hot-laid patching

0078 GP0017 Perform pre-attack actions

- 1 X743 Camouflage equipment or materials
- 2 X746 Conduct convoy operations
- 3 X755 Inspect mats or membranes
- 4 X761 Maintain RRR kits
- 5 X773 Preposition select fill materiel for crater repair

0079 GP0018 Perform REDHORSE/special construction

- 1 F176 Perform well-drilling operations
- 2 W710 Construct portable modular buildings (PORTOMODs)
- 3 W711 Crush rocks using rock crusher plants
- 4 W719 Install or remove aircraft arresting systems
- 5 X742 Assemble or disassemble pre-engineered buildings (PEBs)
- 6 X747 Construct building foundations
- 7 X749 Erect K-span buildings
- 8 X779 Test earth for deadman anchors

0080 GP0019 Perform landfill operations

- 1 P482 Cut sanitary fills using dozers
- 2 P493 Maintain sanitary fills using dozers
- 3 Q509 Cut sanitary fills using scrapers

0081 GP0020 Maintain workcenter records

- 1 E124 Draft changes to technical directives
- 2 E131 Maintain dispatch logs
- 3 E132 Maintain maintenance data records
- 4 E133 Maintain man-hour accounting forms
- 5 E134 Maintain publication files, other than technical order (TO) files
- 6 E137 Maintain TO files
- 7 E138 Maintain work order files

0082 GP0021 Perform sweeping operations

- 1 F162 Inspect airdrome for foreign objects
- 2 S599 Install or remove broom cores or broom segments on sweepers
- 3 S609 Prepare areas for surface treatment using motorized sweepers

0082	GP0021	Perform sweeping operations (Continued)
4	S610	Prepare areas for surface treatment using towed-type sweepers
5	S611	Sweep airfield pavements using multipurpose sweepers
6	S612	Sweep areas using towed-type sweepers
7	S613	Sweep areas, other than airfields, using multipurpose sweepers
8	S614	Sweep areas using magnetic sweepers
9	S616	Vacuum areas using handheld-sweeper hose attachments
0083	GP0022	Cut or weld materials
1	W712	Cut materials using oxyacetylene torches
2	W734	Weld materials using electric arc welding
3	W735	Weld materials using oxyacetylene welding
0084	GP0023	Clear trees and vegetation
1	F151	Clear trees, vegetation, shrubs, or debris from areas using construction equipment
2	F152	Clear trees, vegetation, shrubs, or debris from areas using handtools
0085	GP0024	Repair pavements
1	F144	Break asphalt or concrete using handtools, other than jackhammers
2	F145	Break asphalt or concrete using jackhammers
3	F168	Maintain handtools
0086	GP0025	Perform water distributor operations
1	S594	Irrigate areas using water distributors
2	S595	Fill water distributors
3	S596	Hand spray water from water distributors
4	S597	Perform chemical or mechanical soil stabilization using water distributors
5	S598	Perform dust control operations using water distributors
0087	GP0026	Prepare area for concrete
1	F167	Measure elevations or slopes using hand levels
2	F172	Perform mechanical stabilization of subgrades
3	G193	Compute concrete requirements
4	G197	Construct concrete forms
5	G202	Drive stakes
6	G212	Finish subgrading by hand
7	G216	Install reinforcing steel
8	G217	Install snap ties
9	G234	Place or remove concrete forms
10	G240	Place expansion joint materials

0088	GP0027	Mix concrete
1	G220	Mix air entraining agents or accelerators to concrete
2	G221	Mix bonding agents
3	G222	Mix concrete using concrete mobiles
4	G223	Mix concrete using handtools
5	G224	Mix concrete using portable concrete mixers
6	G225	Operate concrete batch plants
7	G231	Perform slump tests
8	G242	Produce concrete
0089	GP0028	Place concrete
1	G214	Haul or mix concrete using transit-mix concrete trucks
2	G232	Place concrete curbs by hand
3	G233	Place concrete curbs using curbing machines
4	G235	Place concrete using concrete buckets
5	G236	Place concrete using concrete buggies, wheelbarrows, or shovels
6	G237	Place concrete using concrete pumps
7	G238	Place concrete using portable conveyers
8	G239	Place concrete using slip-form pavers
9	G246	Unload concrete from transit concrete mixers
0090	GP0029	Work or finish concrete
1	G194	Consolidate concrete using electric or pneumatic concrete vibrators
2	G195	Consolidate concrete using jitterbugs
3	G196	Consolidate concrete using roller bugs
4	G203	Edge concrete
5	G205	Finish concrete by hand
6	G206	Finish concrete using brooms
7	G207	Finish concrete using burlap drags
8	G208	Finish concrete using power trowels
9	G209	Finish concrete using bullfloats
10	G210	Finish concrete using form riding burlap finishers
11	G211	Finish concrete using slip-form pavers
12	G215	Install concrete joints
13	G218	Level concrete using hand screeds
14	G219	Level concrete using power screeds
0091	GP0030	Perform concrete operations
1	G189	Clean and oil concrete forms
2	G190	Clean concrete joints or cracks using joint plows
3	G191	Clean concrete mixer equipment or attachments
4	G192	Clean pavement repair areas using acid
5	G198	Cure concrete
6	G199	Cut concrete

0091	GP0030	Perform concrete operations (Continued)
7	G200	Drill holes in concrete using core drills
8	G201	Drill holes in concrete using electric or pneumatic drills
9	G204	Fill voids under concrete using mud-jacking procedures
10	G213	Flush pavement repair areas using high-pressure water
11	G226	Pack or unpack spalls kits
12	G230	Patch concrete using mortar resin patch
13	G241	Place prefabricated concrete gutters by hand
0092	GP0031	Install or maintain signs
1	F164	Install or remove signs
2	F169	Maintain signs
0093	GP0032	Construct or maintain fences
1	K335	Construct chain-link fences
2	K350	Maintain chain-link fences
0094	GP0033	Construct or maintain barbed-wire fences
1	F160	Construct cattle gates
2	K334	Construct barbed-wire fences
3	K349	Maintain barbed wire fences
0095	GP0034	Prevent erosion
1	K359	Spread rock or heavy gravel by hand to prevent erosion
2	K360	Spread rock or heavy gravel using heavy equipment to prevent erosion
0096	GP0035	Perform trenching operations
1	F178	Place conduit in pavements
2	I302	Dig trenches using handtools
3	I303	Dig trenches using trenching machines
0097	Tasks not referenced	
1	F161	Excavate areas using handtools
2	F177	Place base course for materials
3	F181	Repair cattle gates
4	F186	Test aircraft arresting systems
5	K343	Locate borrow pits
6	L374	Install or remove tracks on front-end loaders
7	S607	Load or off-load equipment on aircraft
8	S615	Transport personnel using cargo vehicles
9	T643	Remove snow or ice using handtools

0097 Tasks not referenced (Continued)

10	T664	Spread chemicals or abrasives over ice by hand
11	U678	Lift or lower equipment using winches
12	U682	Move or place equipment using jacks
13	X741	Assemble or disassemble mobile field refueling systems